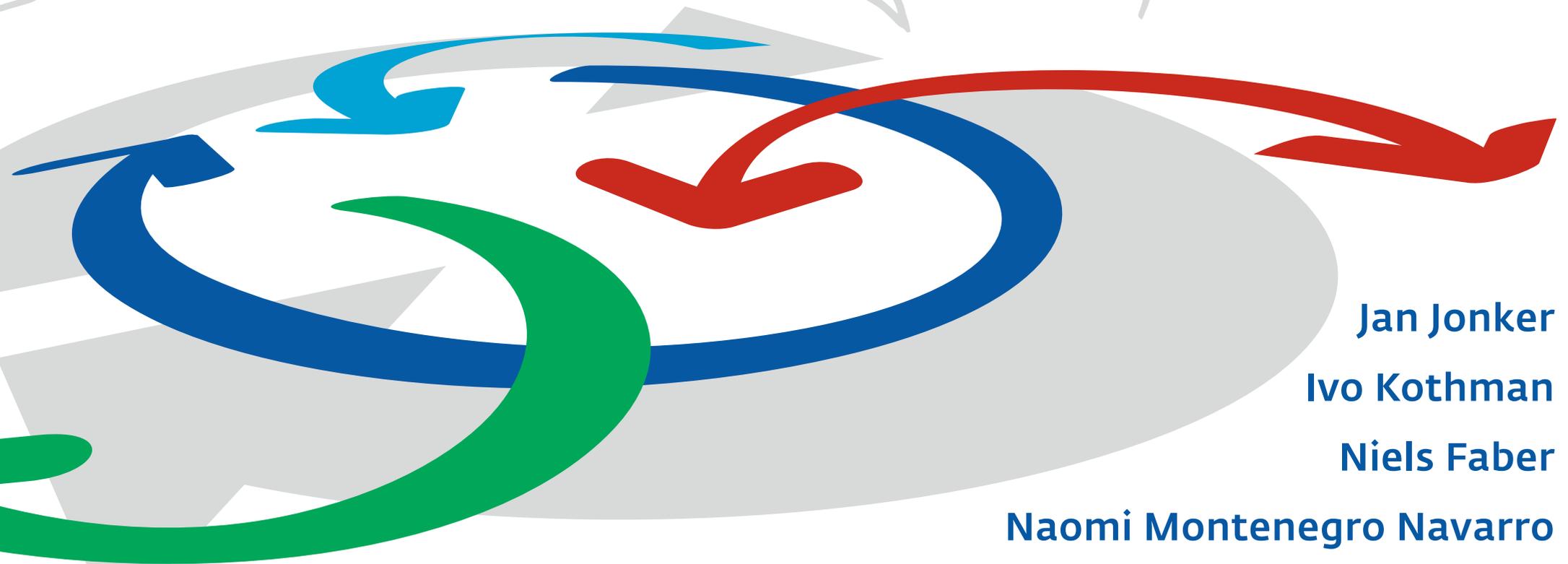


*A workbook for  
developing Circular  
Business Models*

# ORGANISING FOR THE CIRCULAR ECONOMY



Jan Jonker  
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Naomi Montenegro Navarro



Organising for the Circular Economy

## EU action plan for a greener and cleaner economy

The European Commission recently published their strategy for a sustainable financial system that contributes to the transition to sustainable economic growth. To achieve the agreed EU 2030-targets, for example the reduction of 40% in greenhouse gas emissions, each year an additional 180 billion euros have to be invested.

The European Investment Bank (EIB) has calculated that the total amount of investments will reach up to 270 billion euro.

(EU, 2018)

JAN JONKER, IVO KOTHMAN, NIELS FABER  
AND NAOMI MONTENEGRO NAVARRO

# ORGANISING FOR THE CIRCULAR ECONOMY

*A workbook for developing Circular Business Models*

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[www.newbusinessmodels.info](http://www.newbusinessmodels.info) and [www.circulairebusinessmodellen.nl](http://www.circulairebusinessmodellen.nl)

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In the back of this book a set of infographics is included on the cycles of thirty different parties. These have been developed in consultation with the various companies and institutions that are displayed. If you would like to use one or more of these infographics, we request that you address your inquiry to the company or institution concerned as we the authors cannot provide this consent.

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Making a workbook on circular economy and specifically Circular Business Models (CBMs) is unavoidably a collective activity. The foundations for this workbook were laid during the national research conducted in 2016 and 2017 on 'Business Models for the Circular Economy' (BMCE) in the context of the Netherlands. The results of which were published in the book 'Closing the Value Cycle' (2018). Looking back at the BMCE study it only has taken place due to the effort and inputs of hundreds of people who have selflessly cooperated ranging from participating in interviews, surveys as well as critically reviewing interim results.

The workbook is based on knowledge and insights that have emerged over time. In addition, the expertise and skills of a wide range of practitioners and experts have been gratefully utilised. We would like express our gratitude to everyone that has critically assessed the various phases of emergence of the workbook, particularly those that received us for an

**EU measures for waste prevention**  
*On the 23rd of May 2018 EU Member States approved a set of ambitious measures to make EU waste legislation fit for the future, as part of the EU's wider circular economy policy. The new rules will help to prevent waste and, where this is not possible, significantly step up recycling of municipal and packaging waste.*

EUROPEAN COMMISSION, 2018

interview. Without their critical input the results included here would never have been realised. A special word of thanks to Hans Stegeman who participated in the national research and is a co-author of the 'Closing the Value Cycle' publication.

Conducting research costs money which requires sponsors who believe in these kinds of projects. We would therefore like to thank our principal sponsors for their unconditional belief in the need for and relevance of the development of this workbook. These sponsors include KIDV (the Hague – [www.kidv.nl](http://www.kidv.nl)), WEcycle (Zoetermeer – [www.wecycle.nl](http://www.wecycle.nl)), Vlakglas Recycling the Netherlands (Zoetermeer – [www.vlakglasrecycling.nl](http://www.vlakglasrecycling.nl)), Dar (Nijmegen – [www.dar.nl](http://www.dar.nl)), ENVAQUA (Zoetermeer – [www.envaqua.nl](http://www.envaqua.nl)) and Saxion University of Applied Sciences (Deventer). The translation of the workbook was made possible due to generous support of CIRCLES, the Province of Gelderland, and the city of Nijmegen (Green Capital of Europe 2018). We are very grateful for their support.

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Thanks to the support of all the above parties it has been possible not only to develop, but also to freely distribute this workbook in both Dutch and English and we gratefully acknowledge the contributions of all those involved for making this a reality.

The text in this publication does not aim to be discriminatory in any way on the basis of race, religion, or gender. Where it says 'he' in the text, 'she' may be naturally read as well.

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## Rutte III\* and transition

'The ambitious targets that have been set by the Cabinet demand that we depart from the beaten track: the task is to a large extent characterised by a need for integration and the diminishing of sectoral boundaries. All parties need each other to fulfil the great transition that we face together and to make it a success. The steps that we take together have to be anchored regionally and locally as well and provide a clear direction for citizens and companies to make work of the transition themselves.'

(WIEBES, 2018)

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\* Mark Rutte is the Dutch Prime Minister and currently in his third term, hence the name of his Cabinet: Rutte III. The ambitious targets that are referred to are the 'Dutch Climate Agreement'. This agreement knows one central purpose: to reduce the emission of greenhouse gases by 49% by 2030, with reference to 1990.

**A**ttention for the circular economy (CE) is increasing, in the public as well as in the private sector, both in the Netherlands and across wider Europe. Given the potential contribution of the CE to the larger challenges of our time such as combating climate change and making the energy transition this is a positive development.

In 2016-2017 a nationwide study was conducted to assess the current status of the CE in the Netherlands. This research showed that the practical translation of the CE concept to the business community lagged behind the measured interest in the concept. The question of 'how to translate that interest to practical CE efforts by organisations and companies' is therefore extremely relevant.

This workbook is based on the presumption that the CE will only become reality in the business community if it can lead to a business model, because business models are the foundational component of companies. In the national study a model was developed that provides the basis for Circular Business Models (CBMs). This model underpins this workbook, which was developed with a team in the period 2017-2018.

The model consists of seven building blocks that together form a business model for the circular economy. The central idea is to close a cycle with multiple parties. Step-by-step the workbook introduces the reader to the building blocks by offering questions, the purpose being to assist the reader in the development of their own business model; a model that leads to a new value proposition or that shows how to alter a currently existing proposition.

Working on a CBM may not be straightforward as it is likely to involve exploring new pathways and uncharted territory. Therefore, thirty infographics are included that are based on the current business situation of companies that are already actively incorporating circularity in their business operations. These infographics are intended to be used as a tool to support and inspire the reader. Each infographic is designed in consultation with the party concerned. The added value of this rich and unique material illustrating how organisations search for totally different solutions when it comes to the development of collective value propositions.

The infographics, the central model and the somewhat theoretically informed first section of the workbook together are intended to provide a sufficient basis of understanding for the practical slant of the second part of the workbook, in which one can work on the development of a CBM. The overarching intention is to inspire, through examples, quotes from politics and the private sector, and illustrative facts. The workbook ends with an overview of sources, among which includes the literature used, networks and institutions that can be of assistance and an overview of all the companies and institutions that have provided an infographic.

**The EU Circular Economy Package**  
*'The Package will help stimulate Europe's transition towards a CE, boost global competitiveness, foster sustainable economic growth and generate jobs.'*

## The potential of the circular economy

The opportunities of an increasingly circular economy in the Netherlands are estimated to be 3,3 billion euro on the short term, 1,7 billion on the medium term (3-7 years) and 2,3 billion euros on the long term (after 2020). When all opportunities for the circular economy are harvested, this will provide the Dutch economy with an estimated 7,3 billion euro a year and 54 thousand jobs. This corresponds with 1,4% of the Dutch National GDP.

(BASTEIN ET AL., 2013)

**T**his workbook is intended to support anyone that wants to move his or her company towards circular business operations ranging from SMEs to entrepreneurs with an idea for a circular start-up, business developers, CEO's or intrapreneurs within larger companies. This book provides insights into one of the most fundamental components of any form of circular business operations: the circular business model (CBM).

### *Two parts*

The book consists of two parts. The first part provides a theoretically oriented introduction. In this part the conceptual background of the circular economy is provided, as well as insights into the complexity of a circular economy. Part I ends with the exposition of the central model on which the second part of the book is based: the building blocks of CBMs and the context in which CBMs are likely to operate.

Part II of the workbook functions as a do-it-yourself road map. The idea is that the user/reader moves through the various building blocks to inform the development of a CBM. This is enabled by a simple approach: for each part of the business model a set of questions and activities are presented to the user with a total of nine sets of questions.

In the final sections of the workbook, following the questions and activities, the user/reader is briefly taken through a set of closing questions and considerations aimed at encouraging broader reflection. The focus of this is to 'harvest' the results of the workbook as well as highlight the potential consequences of implementing a CBM. We believe that the process of working

through the questions and exploring the various options proposed creates added value for parties seeking to close cycles collaboratively.

Part II commences with its' own dedicated reading guide, in which the instructions for the practical part of this workbook are specifically addressed.

### *Infographics*

As a special feature this workbook includes a collection of infographics. With these infographics we want to visualise how parties have closed a certain cycle (together). Sometimes the infographics regard very large cycles (such as for coffee, water or paper), while others are relatively little ones (such as for coffee grounds, citrus peels or boxer shorts). Sometimes these cycles are based on human-made materials, sometimes based on organic materials (for example the infographic of Peeze). Some of the cycles consist of a very short cycle time of only a few days (for example packaging foil), while others are much longer in duration (for example sheet glass). However, what all these cycles have in common is that the parties involved have proved to be able to make 'closing-the-cycle' a reality. Often this happens despite wide ranging hurdles, unexpected barriers and resistance related to social, organisational, fiscal, emotional, hygienic, or other issues.

Finding a wide range of cycles which are implemented, asking permission and depicting the correct graphic representation of that cycle is almost a research project in itself. To find these examples we have gratefully made use of the outcomes of the national study into Business models for the Circular Economy (BMCE) (Closing the Value Cycle), which forms the theoretical basis of this workbook. Included in this national survey was

the composition of a non-exhaustive list of all the 'green' companies in the Netherlands. This list consists of both the sustainability activities which companies 'auto-claim' as well as complemented by a diverse set of suggestions from conference visitors, respondents, critical readers, et cetera. The list is included in the final section of the workbook (Overview of circular economy cases in the Netherlands).

The majority of the infographics display the actual organisation of the cycle and thereby provides a unique 'behind-the-scenes' view into the organisation of a myriad of parties. To ensure comprehensibility of the infographic several of the cycles represent a simplified version of the course of events. Moreover, several infographics are included that do not yet reflect an actual process, but a pilot trajectory or prototype of a 'process under construction' (for example the infographic of KIDV on the chemical recycling of plastics). The titles of these types of infographics start with 'Prototype'. The infographics are referred to throughout the workbook, with multiple references to the same example. This is due to parties developing and implementing unique solutions from which a range of aspects can be derived. We hope that this visual material provides a positive and inspiring contribution for users of this workbook.

**INFRASTRUCTURE** *Globally, we use 42.4 billion tons of resources each year to build our houses, offices, roads and other forms of infrastructure. This contributes to 40% of our total resource use. (De Wit et al. 2018a)*

*Jargon for jargon's sake  
'Sustainable, circular and climate neutral. If there is anything that gives me the shivers, it is this set of words. Don't get me wrong, the welfare of planet is important to me. But lately I have been hearing so many companies about this, that I cannot help but wonder: are you really that fond of the environment or is this merely blarney to get in the public opinion's good graces?'*

*(BOUMA, J-D., 2018)*

PART I

# Background

## Welcome to a vivid debate

The debate on the circular economy (CE) has gathered great interest at the political, administrative and economic levels in the Netherlands following the launch of the Dutch Government-wide Programme 'NL Circular 2050'. Since then, a Raw Material Agenda (2017) and five Transition Agenda's (2018) have been published by the Dutch government. The European Union is structurally contributing to the CE as well through systematic issuing of guidelines, frameworks and tools. It is therefore realistic to expect that another range of European actions, plans and projects will follow, however what all these initiatives will mean concretely is far from clear.

**INVEST IN THE CLIMATE** *Friday the 9th of March 2018 the Dutch Cabinet Rutte III determined the so-called 'Climate Envelope'. This means up to and including 2030 300 million euros will be made available per annum for measures that contribute to the ambition to reduce the Dutch CO<sub>2</sub> emissions by 49% by 2030. This investment budget can be used for measures that that were agreed on the new Climate Agreement (starting in 2019). For the remainder of 2018 (up till the start of the Climate Agreement) a sum of 90 million euro is available.*

All in all, this shows that the CE is in full development and that there is a need for knowledge on a wide range of domains and subjects. The CE does not only demand technical knowledge about the closing of material streams, but also knowledge about how to structure the process, how to organise it, finance it and how to embed it in society. If the CE is to flourish a transition is required, a large-scale change during which step-by-step the linear economy is moulded in a different direction, steered by new policies and processes, as well as different rules and agreements for trade. Eventually – although this might also be the starting point – this requires new business and revenue models.

The national study of Business models for Circular Economy conducted by the Radboud University during 2016-2017 (see [www.circulairebusiness-modellen.nl](http://www.circulairebusiness-modellen.nl)) demonstrated that enterprises in the Netherlands are in need of knowledge and experience in relation to the CE. This research illustrated that not only future entrepreneurs and employees need to master CE knowledge and skills, but among current professionals this is a requirement as these skills are insufficiently embedded. This workbook seeks to contribute to this knowledge deficit by providing a method to develop CBMs.

### *The history of the Circular Economy in a nutshell*

The CE can hardly be described as new. Before the Enlightenment there was no such thing as a 'linear economy'. The use of natural resources happened locally, dictated by the seasons and most often on a scale that did not corrode the regenerative capacity of nature. Only during the Enlightenment, around 1750, did the notion of progress emerge, and with it the idea of a linear economy. At the core of this idea was the argument that material wellbeing for the average citizen had to continuously increase.

However, 'mainstream' economics has lost sight of the fact that there are limits to the continuous increase of material wellbeing. That said, even classical economists such as Malthus already indicated that linear growth is restricted by natural resources. Although somewhat fatalistic, because the notion of technological progress was hardly considered, this argument was also stressed in the report of the Club of Rome (1972): there are limits to the extent to which humans can exhaust the natural environment. In light of this knowledge the CE can potentially be a part of the solution, combined

**THE GLOBAL CIRCULARITY PERCENTAGE** *Currently, over 90% of the resources that are used globally do not return in the economic system. Only 9,1% of our society can be characterised as circular (De Wit et al., 2018b).*

with other solutions, to achieve the quest of sustainability: by organising the economy in such a way that it operates within planetary boundaries.

**RESOURCE USE** *In the Netherlands we use an average of 14 tons of resources per capita. This equates to the weight of fourteen middle class cars, 13,500 cartons of milk or almost 117.000 apples per person.*

The CE is based on the (re)designing of production systems on a variety of levels, in which value retention in chains and during the life cycle of resources, materials and products is key. This has to be organised in and between companies before a circular production system can emerge. This often leads to new and intensively connected recycling and reuse patterns, mostly of a cyclical nature and leading to value creation that is mutually dependent. As material and organic resource streams are the basis for the redesign, this process also has a large influence on the nature of and the composition and deployment of staff in companies. Companies that are involved in CE projects need new talents and support to transition as over time it is likely that there will be less need for 'linear' production work. A decline of the old economy creates space for the emergence of the new economy: one that is based on value cycles that are realised over time. The single transaction moment between parties is no longer the central element; instead, we see a chain of interconnected transactions between parties that are realised over time. This forces one to interact differently as individual organisations are no longer the central element. Instead, networks and clusters of cooperating organisations are the distinctive characteristic of this new economy.

### **Collective value creation**

Cooperating differently also leads to a revision of the logic of value creation. Value creation is the core of a business model. Despite the nature of

an economy value creation is the shared undertaking of economic actors. In essence, a business model is the description of the way value creation is organised between parties (in a certain moment, in a certain context and given available resources).

It is common to describe this from a perspective in which the organisation is the central element. In the circular economy on the other hand, value creation is an inter-organisational task, a task between the parties involved that together try to realise value retention. Whereby in the current economy waste is considered worthless and the costs of transforming waste into 'something useful' are high, this is interpreted differently in circular thinking. At various places within cycles of the circular economy costs and revenues are made to realise that cycle. To sustain the cycle, the net costs and revenues and their division amongst the parties involved has to be reconsidered. Core of the puzzle at hand are establishing the weighting and redistribution of both the value creation that emerges, but also the costs in the cycle which are required to realise the value created.

To arrive at a better understanding of how collective value creation can be organised, it is paramount to unpack and understand all the separate but inter-related key concepts and facets. The following sub-sections are

**THE DUTCH CLIMATE AGREEMENT** *The Dutch Climate Agreement knows one central purpose: to reduce the emission of greenhouse gases by 49% by 2030, with reference to 1990. The Climate Agreement has to include concrete arrangements on CO<sub>2</sub> reduction, that show which parties are responsible for realising the results. The arrangements are made within five sectors: industry, mobility, the built environment, electricity and agriculture and land use. Each sector gets a distinct reduction target in megatons of CO<sub>2</sub>, as agreed in the Coalition Agreement. (Dutch National Government, 2018)*

dedicated to explaining this, starting off with a clarification of the concept of the circular economy.

### *What is the Circular Economy*

The circular economy can be defined in various ways; there are more than a dozen definitions available. We restrain ourselves to only two definitions.

In this workbook we use a short and a long definition<sup>1</sup>. The short definition: the circular economy aims at value creation by organising value retention in cycles. The long definition: the circular economy stands for an economic system aimed at maximising reusability of products, parts and resources. The aim is to minimise value destruction. Ideally, the CE should lead to a restorative and regenerative economic system; although this certainly does not happen automatically.

### *Central principles of the Circular Economy*

Two central principles of the CE can be deduced from the previous definitions, namely:

- **Organising cycles** Within the circular economy the closing of resource cycles is a key principle. By closing cycles waste can become a resource again and value retention of products and materials can be maximised. Organising in cycles is an immense task in which multiple parties have to cooperate over time to realise value retention and value creation.
- **Maximum utilisation of functionality** Within the circular economy the use of products, materials and resources is increasingly intensified and a strong focus lies on maximum reuse and the retention of the orig-

<sup>1</sup> Anyone interested in further definitions (or anyone that wants to broaden their knowledge on the CE) can find several additional sources in the final sections of this workbook (sections 'Media/News', 'Literature', 'Education').

*'The circular economy is an economic system that is meant to maximise reuse of products and resources and minimise value destruction. This is fundamentally different than the current linear system, in which resources are converted to products which are destroyed at their end of life.'*

(MVO THE NETHERLANDS, 2016)

inal value of the product or material for as long as possible. Henceforth, the goal is to maximise the utilisation of functionality.

**FRYING FAT** *The sustainable hotel QO Hotel ([www.qo-amsterdam.com](http://www.qo-amsterdam.com)) in Amsterdam wants to use frying fat as a fuel but is being hindered, because they would first have to become a waste management company to be able to do so. ([Duurzaambedrijfsleven.nl](http://Duurzaambedrijfsleven.nl), 2018)*

Following these principles leads to new organisational models based on cycles. At the same time, this form of value creation means that the underlying business models have to be reconsidered as understandably, in the current linear economy linear business models are used. This means that contemporary business operations are aimed at the value chain instead of the value cycle. A value chain is aimed at the idea of value creation through a system of input-throughput-output. When the principles of value creation change and we start to think in cycles this therefore implies that we also need to work on a new generation of business models: models that are cooperative, circular and in cascading. This last concept means that value is created through the accumulation of activities in a value cycle.

What the implications are of a shift from value chains to value cycles is elucidated in the following section.

### *The difference between linear and circular (and vice versa)*

Our society is a society of organisations. Everything that we are is organised by, for and with each other. The pattern underlying how we organise is based on the industrial model aimed at the transformation of raw materials to products. Organisationally speaking this is done very efficiently. Economically speaking the (implicit) principle is that the lifespan of products is as short as possible, even though these products are perfectly useable from a material perspective. This leads to a stimulation of turnover rate that is as high as possible, based on the principle of 'planned obsolescence'. Concretely, this means that products are broken down or made obsolete after a set, and limited, time and underpins the so-called 'take-make-waste' production model based on linear value chains. The faster products move through the economy, the greater the economic growth. This model leads to the depletion of resources and the pollution of our human habitat, particularly in light of rapidly growing human population. The notion of sustainability challenges this reasoning arguing for the use of natural and social capital sparingly. In the nineties this line of thinking lay the foundation for the 'notion of recycling', which in turn has led to the famous sustainable and circular trio of 'recycle, reduce and reuse', from which a multitude of varieties have emerged.

### *Towards a Circular Economy*

In the past half a century this notion of using natural capital sparingly has developed through a variety of stages into the idea of an alternative economy. One in which in principle raw materials, parts and semi-finished goods can last 'forever' (which of course does not apply to all raw materials; food for example is eaten, of course). The core idea is an economy in which entrepreneurship contributes to the conservation and growth of

various forms of capital. This includes for example social, institutional, natural, financial and cultural capital. This requires design of products with a simple and efficient 'dismantling system'. Elaboration of alternative design principles also means looking at the chemical structure of raw materials in the face of reusability (addressed by the Cradle2Cradle philosophy among others). In turn this requires organising cycles in which the value of (raw) materials is retained in the best possible way to enable optimal reusability. The current debate about raw materials sometimes seems to suggest that all (raw) materials can be reused indefinitely. However, there are major differences between the reusability rate of materials and there are limitations to their reusability. For example, some raw materials can be used 7, 16 or even 27 times (e.g. rubber, glass, wood, tin, textiles, concrete, etcetera) but materials eventually degrade and will become only suitable for low-grade applications over the course of time. Nevertheless, there is a lot of room for improvement in terms of the process that leads to securing and retaining the value of (raw) materials.

*'A circular economy is characterised as an economy which is designed as a regenerative system, with the aim to retain as much value as possible of products, parts and materials. This means that the aim should be to create a system that allows for the long life, optimal reuse, refurbishment, remanufacturing and recycling of products and materials.'*

(HET GROENE BREIN, THE NETHERLANDS, N.D.)

In short, the circular economy is based on the idea of keeping materials in circulation for as long as possible and using them at the highest possible value during their lifespan. Doing this efficiently demands a large-scale approach because material flows need to have sufficient volume. Such an economy will shrink materially speaking compared to a linearly organised economy. Less mining and manufacturing of new products is needed, while goods are used for much longer contributing to the achievement of value creation and value retention. Moreover, organising for value retention also provides new opportunities in terms of jobs, because keeping (raw) materials in a cycle requires many 'hands'. The ultimate goal of the transition towards circularity is to achieve a new economy that closes material cycles as much as possible and in which the organisation of value retention is key.

### **Circularity is not just recycling**

*'Recently I heard that a large and well-known Dutch enterprise demanded the replacement of the word 'sustainable' with the word 'circular' in one of their reports. That is worrying: people think that recycling is the same as circularity, while it actually is the very last thing that you can also do with your materials. The key is to consider the value of a material, the energy you put in – you ought to harvest that as well.'*

SABINE OBERHUBER, CO-FOUNDER TURNTOO. (BROUWER, 2017)

Thus, circularity is more than recycling. The objective of recycling is to reuse waste on the basis of residual value. Circular enterprises aim to minimise waste, or ideally, ensure waste is eliminated entirely. The latter means changes need to occur in the entire value chain: from the use of fewer and preferably renewable (raw materials) to designing and making products that have a longer lifespan and are easy to repair, easily disassembled or that can be upgraded a number of times during their lifecycle. Implementing this vision requires business and revenue models that ensure that companies benefit from products that are designed and maintained in line with principles of circularity.

We argue that the emergence of the circular economy centralises the economy within the debate on sustainability. Sustainability is no longer a purely ethic, moral or ecological task that costs money and is cut loose from present-day economics. On the contrary, the task of integrating circularity in the economy means rethinking and working on a different design of the economy based on cycles and raw materials. The central idea is to organise value retention through the closing of cycles.

### **Organisational implications**

Value retention as a collective task means that a shift occurs from an organisation-centric perspective to co-creating and co-maintaining a cycle that creates value over time at various moments by re-entering that what already exists ((raw) materials, products) into new transactions. This results in a collective business model, based on a value cycle-centric organisational perspective. Recycling shifts from something that occurs at the end of the value chain to a central principle for the design and organisation of a cycle. This changes the conventional value chain into a value cycle aimed at the best possible organisation of the retention of properties and qualities of raw materials and subsequent products. Instead of

making as much as possible, the goal is to make products last as long as possible or to make product parts or raw materials last as long as possible in multiple cycles.

**THE LIFESPAN OF MATERIALS** *Over 61% of the total input of materials are being used for so-called 'short-lived products'; the lifespan of these products is usually less than a year. (De Wit et al., 2018b)*

### ***Value creation through value retention***

The difference between the linear and the circular economy is further revealed by the difference between value creation and value retention - there is a clear shift in (1) focus and (2) level of aggregation. With regards to the changing focus a shift is visible from primarily financial value creation for individual organisations in the current, linear economy, to a focus aimed at value retention (of products, (raw) materials) in the form of cycles in the circular economy. Organising value retention at the level of cycles also leads to a shift in level of aggregation from the organisation to the cycle.

That value creation in the linear economy is purely financial does not do sufficient justice to reality. Each organisation generates more than one value; people do not only work for money but also personal development, making a difference, and a large set of other aspects of being human. However, at the level of the organisation as a whole, these forms of value creation are much less visible and subordinate to the ultimate organisational goal of financial value creation.

Another aspect of financial value creation in the linear economy relates to the externalisation of costs that are not valued within this way of thinking. This does not only relate to the disregard of effects that do not create financial value from the perspective of the individual organisation (or the value

chain), but specifically relates to the passing on of the costs and damages that are created to actors that did not ask for it; not least the planet as key recipient of our 'garbage'. This is the reason that increasingly, people speak of value destruction instead of value creation when relating to this linear way of working. The end result is almost always negative if all these currently externalised costs are considered. This form of value creation with corresponding value destruction is completely embedded in traditional strategic focuses. Strategies aimed at circularity seem to be able to address this.

Nevertheless, when an organisation chooses to create a CBM, it seems to get confronted with a paradox. We assume that a choice for circularity means that the organisation chooses to pursue a strategic focus aimed at cycles and value retention. Yet a paradox emerges due to the tension that exists between (1) achieving value retention at the level of the value cycle, and (2) achieving value creation at the level of the individual organisation.

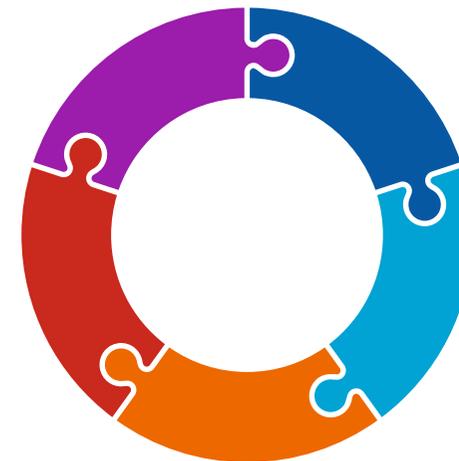


FIGURE 1 Cycle

While strategies for circularity are aimed at the level of value cycles and do give a few indications for organisations to work on aspects of value retention, what this means for value creation at the level of the individual organisation appears to be a rather difficult question. This raises the question of what are the implications for value creation for existing companies when they aim to shift to a circular business model?

### *The task: organising value retention together*

The central ambition of the circular economy is to organise value creation in cycles that exist of (a mix of) (raw) materials and products. This can only take place if parties cooperate. However, this thinking in terms of value retention, of cycles, and to see this as a collective challenge is new and therefore complex. Our society is based on a linear economy that forces companies to put themselves at the centre of their ambitions in every possible way (legally, financially, fiscally, etcetera). Thinking and acting in a circular way thus brings along large changes; so large that we call them 'transitions'. Typically, transitions are discussed in both the political and societal realm where the tendency is to say they ought to occur; but in the end no one has complete control and can orchestrate how such a transition should become reality. In addition, transitions inflict much resistance, particularly from the existing order, which can be defined as the people and organisations that are currently flourishing in the linear economy. All in all, this shows that the realisation of transitions are simultaneously an extensive social, organisational, institutional, technological and change management task. No wonder that the discussion is focussed on a change of era rather than an era of change.

The question is though: how to foster the transition, or at least a part of the transition, in everyday organisations? This can be done in a myriad of ways. Think of sustainable procurement, lobbying for the development of laws and regulations to accelerate circular entrepreneurship, starting

**CRUDE OIL PLASTIC** *About 8% of all crude oil is converted into plastics. The world production is about 250 billion kilograms per year. About 4,7 billion kilograms of that total is floating in the oceans, and it is estimated that another 12 million kilograms are added every day. (Jansen, 2014)*

a circular project within your own organisation, and so forth. Whatever the starting point is, it has to be organised, because our (Western) society exists by the grace of the fact that everything we do and are is being organised. Hence also the circular economy. We are then organising for the circular economy – or to put it even more sharply, we are organising for circularity. We do this to achieve value creation by value retention which leads to a business model. More on these in the next chapter.

## **Business models**

### *What is a business model*

A business model (BM) is the way in which the creation of value is organised by organisations. The conventional description of a business model (see accompanying figure 2) consists of three elements. First the logic of value creation, in other words the value proposition: what added value is being created financially, but also socially and ecologically? Secondly, the way in which this value creation is organised either within a single organisation or in some cases amongst multiple parties. To make this happen, different building blocks such as clients, channels, costs and activities have to be connected in a logical manner to facilitate the achievement of the goal, the delivery of a certain good or service, in a profitable manner. The third element relates to the revenue model or models whereby the costs related to the organisation of the business model are interconnected with the revenues generated from the value proposition.

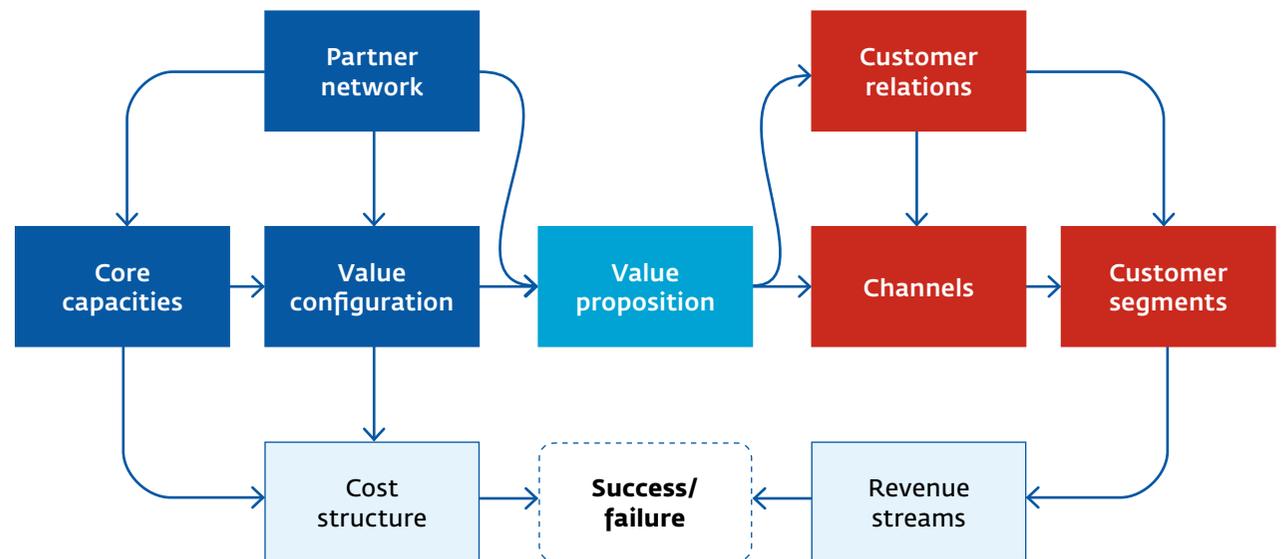
It is common that a business model only encompasses one organisation and is predominantly aimed at generating the creation of financial value. Value creation is thus reduced to revenues, profits and making money. Within the circular economy, it is necessary to broaden this understanding. A few things stand out. A circular economy demands cooperation between companies and other parties to realise a value cycle. In addition, the concept of value creation is broadened; not only financial value, but particularly ecological and societal value creation are also pursued. We refer to this as multiple value creation<sup>2</sup>. This allows for the emergence of a business model in which several parties create multiple values in dependence. Value that not only exists by the grace of transforming new raw materials to products, but more specifically also improving the use of that what already exists in a myriad of ways.

The result of the joint organisation of multiple value creation is that a suitable strategy has to be chosen, which is supported by the right revenue models. Organising in cycles means that a business model is based on the idea of selling the same material, the same part or the same device multiple times, over time. In turn this means

<sup>2</sup> As conceptualised by Jan Jonker, see for example Jonker (2014).

that revenues are not generated at a set point in time with one transaction, but over time on varying moments. This asks for a new form of strategic thinking – as when things are part of a transaction more than once their properties and qualities need to be preserved, which is in the interest of all parties involved. Doing so means less virgin materials are being used because maintaining that what already exists is often smarter, cheaper and ecologically less burdensome. These joint efforts lead to new revenue models and relatedly new calculation models (predominantly for cost-calculations, but also to calculate residual value of materials and products).

**RESOURCE USE** *In the past 40 years the use of materials on the global scale has tripled. Where in 1970 we used 26,7 billion tonnes of materials, this has increased to 84,4 billion tonnes in 2015. (De Wit et al., 2018c)*



**FIGURE 2** Business model (Adapted from Osterwalder, A. 'The Business Model Ontology', 2004)

### *Types of business models for the 'New Economy'*

In the past two centuries we have increasingly left the organisation of value creation to organisations – rational structures designed for the purpose of goal realisation. Over time, these organisations have evolved to almost exclusively focus on money as the central and only mode of exchange. No wonder that the primary goal is financial value creation, or to put it more bluntly, investment yields for shareholders. Everything in this model that cannot be converted into euros, or does not contribute to investor yields, does not count. Within the context of a sustainable society, this is undesirable. New business models can help in the quest for alternative, multiple forms of value creation.

Luckily, current developments of business models already point in the direction of multiple value creation. We make a distinction of three types: (1) platform business models, (2) community business models, and (3) circular business models. Often, these business models can be very well combined.

- 1 **Platform Business models** We are surrounded by a world of 'things'. Many of these things we barely use, or only with peaks and troughs (e.g. cars, parking spaces, but also clothes, tools). Would it not be better to increase the use of the properties of those things (drilling, dressing, providing mobility) by letting more people benefit? By means of a platform, capacity and availability can be much better 'brokered', meaning less stuff has to be made. Intensifying utilisation is therefore smart albeit unfortunately not always sustainable. Whoever can smartly connect capacity, need, and accessibility has a business model. Platform models thus provide a direct contribution to a shift to services and can be very well combined with the other two types of business models.
- 2 **Community Business models** The digital technology to connect people is increasingly accessible and affordable. We are at the begin-

ning of an era in which we are digitalising everything we can get our hands on. At the same time, more and more often people are willing to invest in their own means, their own community, their own electricity, etcetera, as long as these investments provide some form of 'profit'. When these two trends are connected, new business models emerge. Consequently, we can see people setting up energy cooperatives, joint mobility schemes, local do-it-yourself energy supported by blockchain technology as the means of transaction, etcetera. Common citizens invest money (crowdfunding) and time (time banking) and come to a community business model.

- 3 **Circular Business models** At the crux of circular business models is the organisation of value retention between and by organisations around the redesign of multiple interconnected material and product cycles. The parties that are involved have to come to a collective business proposition<sup>3</sup>. How can we organise materials such as tyres, tiles, paper, concrete, plastics, glass etcetera in such a way that the value these materials represent is preserved and maintained as long as possible? In its essence, a circular business model is the description of how value creation and retention is organised between parties (at a certain time, in a certain context and given the available resources). A circular business model shows the logic of value creation based on a set of building blocks. A complete circular business model is the sum of the choices made for each individual building block. These building blocks will be outlined one by one at the end of the next chapter.

When seeking to create multiple value creation all three of the above-mentioned types of business models are relevant, which is why it is worth-

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<sup>3</sup> In this workbook we use the terms collective business proposition and collective value proposition interchangeably.

while to introduce them. That said, the remainder of this book, will only address the third type of circular business models (CBMs), to support entrepreneurs with circular ambitions.

**RAW MATERIAL USE** *The 92, 8 billion tonnes of raw materials (excluding water) that feed the global economy on a daily basis are equal to 33,4 kilograms of raw materials per person per day. This amount includes 37,8 billion tonnes of minerals used in the construction sector; 28,7 billion tonnes of biomass used for food, construction materials and firewood; 16,6 billion tonnes are burned as fossil fuels used for energy production, transport and as input for the chemical industry, while 9,5 billion tonnes are metal ores used for the production of energy and a variety of metals. (De Wit et al., 2018d)*

## Principles of the circular economy

In the first chapter the two central principles of the circular economy were outlined. In the following sections, both principles are further elucidated contributing to a more detailed description of the concept of circular business models and the building blocks of CBMs. This section reveals the conceptual approach that underpins the practical workbook in Part II.

### **Principle 1** Organising cycles

The first central principle of the circular economy regards the organisation of materials, products and processes in cycles.

*A cycle is the result of a collective organisational effort between various parties, which arises over time.*

Cycles enable value creation and retention because the parties involved cooperate in such a way that (raw) materials and products can be used as optimally as possible<sup>4</sup>.

A common classification is to divide these into (1) closed and (2) open cycles. The first addresses the recycling of resources. The core of a closed cycle is that the same actors preserve the material cycle organisationally, technically and economically, over and over again. The latter addresses upcycling and conversion of (raw) materials. This means that a substance which lost all value in the original purpose is converted into a new, valuable resource. Against this background, it is possible to make a distinction into broadly five types of cycles (which are not mutually exclusive): (1) clean cycles, (2) short cycles, (3) access cycles, (4) long cycles and (5) cascade cycles (inspired by Kraaijenhagen, van Oppen and Bocken, 2016).

- 1 Clean cycle** The purpose of the first type is to design the cycle in such a way that the intended material remains as pure, as clean as possible. A good example is the recycling of (sheet) glass or synthetic materials without added 'junk'. Value retention is coupled to the purity of the material.
- 2 Short cycle** Short loops concern cycles of packaging material of for example fizzy drinks or meat. Strategically speaking, the question is

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<sup>4</sup> When describing cycles, two aspects are not taken into account. First, we act as if cycles are 'separate' from a whole organisational and institutional network, as if they operate alone. However, most often this is not the case. Cycles are part of networks or clusters of cycles. A second aspect is the international character of many cycles. Products are often not used in the same country as they are made in, which means many cycles transcend national borders. We do not address this factor as many parties do not have any influence on that international aspect. In practice, this means that it can be very difficult to close a cycle; which can therefore sometimes only be done partially.

whether these kinds of cycles require their own distinct cycle-organisation. There are many of these short loops in which (raw) materials are used in very short cycles and are for the most part barely degraded and only slightly polluted. The large majority of these kinds of materials disappear in the bin after the first use. If you want to pursue closure of short cycles, this predominantly requires a logistical solution. An additional question is whether it is possible to recycle these materials locally or regionally, for example by using 'smart logistics' as currently the value is generally lost.

- 3 **Access cycle** In the access cycle the focus lies on obtaining materials and their quality. In essence this is a matter of coordination, as such cycles are about acquiring access to the stock and availability of materials in circulation. The central question is from which materials and resources such cycles can exist. A tangible example is the composition of pruning which can be used in anaerobic digestion. What does the law prescribe and what is technically if not pragmatically feasible? What is also important is how value is determined the moment that material becomes available again after fulfilling its first (or second or third...) purpose. Which quality criteria are at risk and can these be applied practically as well?
- 4 **Long cycle** In the long cycle the focus lies on (raw) materials which have long cycle times. Think of bitumen (see the infographic of Roof-2Roof), bricks and concrete. These types of resources are often locked up in buildings, roads or art works for decades as stocks. In long cycles, important questions address (1) the timing of availability of materials, (2) the state of these materials and (3) how the value of these materials should be determined, especially the values other than financially? The inability to access the value of materials for longer periods of time also requires alternative forms of financing schemes.

- 5 **Cascade cycle** The fifth and last type of cycle addresses the way in which various parties in the cycle will achieve (1) value retention, or (2) value creation. It might be that the shell of a prawn is more valuable than the prawn itself. However, to harvest that value the prawn needs to be peeled while the qualities of the shell have to be preserved. Wood clippers barely have any value at all, but when converted into pellets that are used in mobile heating stations they suddenly become a crucial building block for value creation. Keeping the importance of closing cycles in mind, the parties involved try to achieve value creation by organising themselves in such a way value creation can be achieved. That value will be generated in a 'cascading' manner; the parties need each other to arrive at an agreed collective value proposition. This ideally means that they cooperate by means of an organisational and revenue model in which they share revenues, costs, risks and responsibilities – which can prove challenging at times.

#### *Four ways of organising cycles*

The categorisation as presented above is an extensive and complicated lens to explore cycles. For the purpose of clarity, we use a simplified categorisation in this workbook. We present four ways to organise a cycle, being:

- Closing a material cycle (as) fully (as possible). Material returns in the value chain at the same quality level, when feasible.
- Utilising the value of materials for as long as possible; keeping materials in circulation for a prolonged amount of time.
- Acquiring materials as close as possible (geographically speaking) and keeping them in a close geographical range.
- Radically reducing material use (with and without degradation) in the various phases of the cycle.

The choice of which type of cycle is pursued is one of the seven building blocks of the circular business model, further elaborated on at the end of this chapter.

### *The Cycles Ladder – five phases*

Closing the various cycles of an organisation and her value chains is an immense task in the face of the current linear configurations. It is an illusion to think that a company can move to full circular organisation in one go. The evolution is more likely to occur in several phases. We make a distinction between five phases, which run from simple to complex. Each phase describes a developmental stage of an enterprise to organise her processes according to the idea of closed cycles.

- 1 The first level of the ladder is straightforward and is called 'in-house circularity', the idea being that an organisation closes cycles that almost entirely occur within the scope of the organisation. The organisation may do so alone or with the help of suppliers. A typical example is that of the horticulturalist that keeps heat, water and chemicals within their own company. Closing these 'in-house' cycles has only limited effect on the revenue model of an organisation but generates a reduction of costs.
- 2 At step two of the cycles ladder the focus widens to the part of the production process in which several organisations play a role. We call this phase 'partial chain integration'. Within an existing value chain, a partially closed cycle emerges. For example, the waste of one party may be used as a raw material for the other, resulting in reuse. In the case of partially closing cycles where multiple parties are involved, there should be explicit focus on the division of costs and benefits which introduces the debate on inter-organisational revenue models.
- 3 The third step of the cycles ladder reveals the emergence of a fully closed simple cycle based on one specific material. This may be called a 'material mono-flow cycle'; think of paper, iron, a specific type of plastic, rubber, etcetera. In this phase, production processes are designed in such a way that the material once designed and produced with the aim

to circulate enters a closed cycle. The ambition is to organise (almost) optimal reuse and recycling. Within this third phase it is crucial that parties work together to close the cycle. This requires joint organisation including the related revenue models and hence new modes of governance; not aimed at the own organisation, but on organising together.

- 4 Organising of value cycles becomes more complicated when there are several mono-material cycles that are mutually dependent on one another. Think about the assembly and disassembly of a washing machine, a car or a phone. Typical for phase 4 is the complex entanglement of parties and cycles. In other words, an 'organisation-ecology' emerges

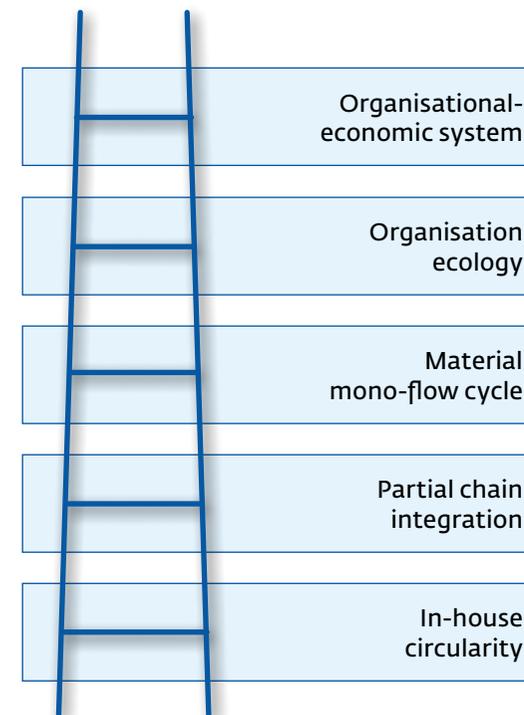


FIGURE 3 *The Cycles Ladder*

of businesses and parties that act in various subsystems but are mutually dependent. The coherent organisation and coordination of these subsystems is a crucial prerequisite to get such a circular ecology up and running<sup>5</sup>. Consequently, the underlying organisational and revenue models have to be complementary.

- 5 At the highest level of the cycles ladder we see a further interweaving of interlocked, complex cycles and subsystems. This results in an 'organisational-economic system'. At this level, the transition to the system of a circular economy is in full operation. In this phase the point is cooperation between all parties involved to organise the system as a whole, including the institutional context, however it is anticipated that achieving this transition will take at least 30 to 40 years (Perez, 2003). It should be noted that some cycles cannot possibly be organised in a circular manner, while others can become circular in a relatively short time span. Only once all of the above has been fully established, can we speak of a mature circular economy.

We do not claim that the proposed Cycles Ladder is applicable on all sorts of cycles- mainly cycles related to (raw) materials are considered. Some materials will become available after a relatively short time span (think of the parts of washing machines or coffee machines), while the bricks in a house, the steel of a ship or the aluminium used in a plane are in use for much longer and will only re-emerge in circulation at a much later stage. Moreover, the Cycles Ladder does not address the question regarding how preservation of materials in cycles develops. What is the effect of cycles that last for 10, 20 years or longer? What does it mean for the preserva-

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<sup>5</sup> It is possible that parties coincide in one or more phases of the cycle but appear to be able to substitute for each other and are hence competitors. This can lead to efficiency improvements of the entire system but – let's be honest – also to possible tensions.

tion and quality of the used (raw) materials? Things deteriorate, and (raw) materials are used intensively. Deterioration means loss, aging and decomposition. Officially this is called 'leakage'. It is advisable to calculate the expected percentage of leakage and to take this into account when designing and organising a closed material cycle.

### **Principle 2** *Maximum utilisation of functionality*

The second central principle of the circular economy, maximum utilisation of functionality and reuse, is facilitated by a range of physical activities that are deployed for the reuse or adaptation of technical materials. To many people, these activities are known as the 'Re' or 'R' activities. A common categorisation is the following:

- 1 *Redesign*: new ways of designing products is required such that the components of which a product exists (e.g. a house, car or polymer) can be easily disassembled and modified.
- 2 *Repair*: maintaining and reusing already existing products, possibly with slight modifications or upgrades, aimed at product life extension.
- 3 *Refurbish*: upgrading and updating of products and product parts for the purpose of a 'second-life' and the ability to market them 'as new'.
- 4 *Remanufacture*: this regards the remanufacturing of the entire product, reusing parts of products or on the basis of 'second hand' materials and parts.
- 5 *Repurpose*: to use products, parts or even raw materials for other purposes than originally intended.
- 6 *Recycle*: recovering (raw) materials for the purpose of reusing them, ideally in a high-value application by which they become 'as new'.

In addition to this common categorisation we add two other activities:

- 7 *Conversion*: converting raw materials and waste to new materials and resources. Think of converting CO<sub>2</sub> into methane, the conversion of surplus electricity into hydrogen or sewage sludge as the basis for energy.

8 *Substitution*: striving for the replacement of conventional raw materials with sustainable, often bio-based materials. Think of tomato foliage as substitution for cellulose when making paper, elephant grass for similar purposes, the use of citrus peels, shrimp shells or the kernel of avocado because of the raw materials that can be extracted.

The above categorisation of activities does not suffice for organisations with the ambition to foster the transition to a circular business model, because these activities only regard the reuse and modification of technical materials. The options for circular organisations, on the other hand, are broader. For this reason, we integrate this set of activities in the so-called 'strategies' for circular business models.

### *Strategies for circular business models*

Strategies are the approaches to action that organisations can deploy to achieve the core activities of the circular economy as described above. Strategies can be purely technical (which in principle means they overlap with the activities) but often also regard organisational perspectives of action, or a combination of both. We identify six:

1 *Product-as-a-service*: this regards the process in which the use of a product is sold as a service and the ownership of the product (washing machine, central heating systems, cars, lawn mowers, etcetera) often remains with the producer. This strategy can lead to what is called 'dematerialisation'<sup>6</sup>: you buy (or rent or lease) the use of a product, but you do not own it.

6 With an emphasis on can. Unfortunately, there is also a real risk of using more products, as is visible now with people that lease their mobile phone. Each year they get a new one, all the while they take little care for the device as it is not their property. Hence, only when combined with strict agreements in which shared responsibilities between producer and user are ensured, product-as-a-service strategies can lead to dematerialisation.

- 2 *Product life expansion*: the ambition to use products as long as possible, ideally in their original state. Think of office supplies that find their way to second or third users, second-life cars or refurbishment of electronics (see for example the infographics of Canon and Desko). It is important to stay 'in the loop' and thereby take responsibility after 'moving' the product to a foreign market for example - either by legally staying accountable or by making clear agreements with the next party in the value chain.
- 3 *Recycling*: partially or fully recovering (raw) materials, parts or products while preserving value for as much as possible. It is important to be aware that this can result in both low-value (for example mattresses that become isolation material, clothes become carpets, etcetera) and high-value recycling (e.g. sorting plastic per type and recycling until it is almost a virgin mono-flow).
- 4 *Conversion*: key is the conversion of residual materials (such as old tires), residual streams (such as CO<sub>2</sub>) and residual value (such as a surplus of energy) into a new (base) product – like old tires to carbon black, CO<sub>2</sub> to methane, electricity to hydrogen or sewage sludge into energy; see the infographics of Black Bear, PaperWise, ARN B.V.).
- 5 *Substitution*: replacing one raw material with another; with substitution a lot of attention goes to the so-called 'bio-based' resources (stems, roadside grass, etcetera). It is important to select bio-based materials that do not pose any negative impact on sustainability, because this is not guaranteed for all biomass streams.
- 6 *Eco-efficiency*: Even though this strategy does not really fit in the list of circular strategies, reducing the use of raw materials, energy, mileage, etcetera is a very worthy to pursue and often a first step on the path towards increasing circularity. We often see this in practice -see for example the infographics of Suiker Unie and Canon. An advantage of this strategy is that it is easy to calculate; for example less kilometres are easily transferred to reduced fuel costs, less CO<sub>2</sub> emissions and less maintenance.

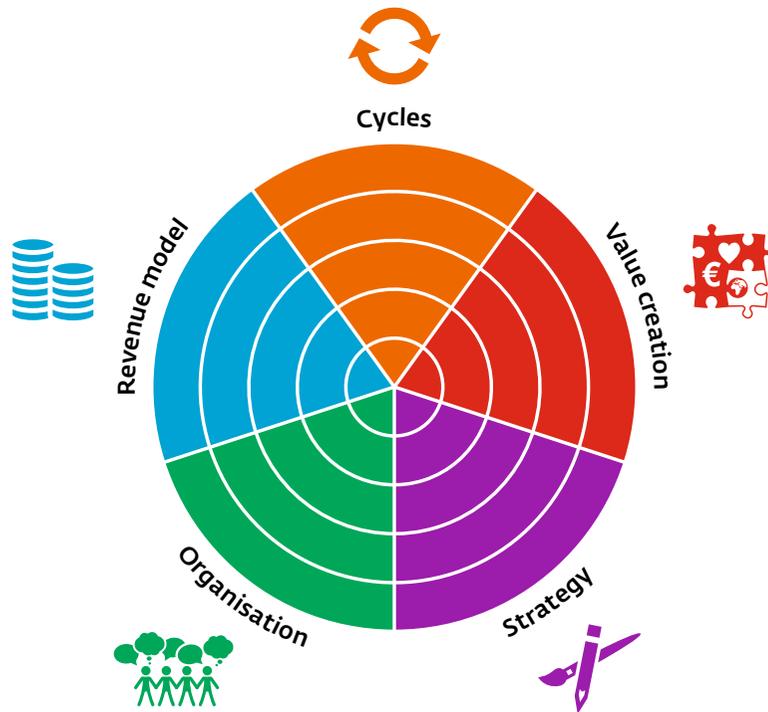


FIGURE 4 CBM (Original)

As with the four ways of organising cycles, the chosen strategy is one of the seven buildings blocks of a circular business model which are discussed further at the end of this chapter.

### *Towards a circular business model*

Developing and elaborating on the two central principles of the circular economy has led to insights in two of the buildings blocks of the circular business model, namely cycles and strategies. A circular business model, however, consists of several other buildings blocks, and together with the contextual factors in which business models exists, these building blocks constitute the central model on which the activities in the second

part of the workbook are based. The idea for this model emerged during the Dutch national research on Business Models for the Circular Economy (BMCE) which took place in 2016 and 2017. From this research, initially five building blocks came to the fore:

- 1 **Cycles** The central idea of circular entrepreneurship is the organisation of cycles in which product, parts or (raw) materials can be used multiple times. How often exactly and against what costs depends on the nature of the cycle, as various types exist, as outlined above.
- 2 **Value creation** Striving for multiple value creation including social, ecological and financial; companies that close a cycle but that do not generate any sustainable value cannot be defined as a circular business model. They do not contribute to an economy that operates within planetary boundaries.
- 3 **Strategy** A business model has to be based on a suitable strategy. It is important that the moment of sale of a product is no longer the central parameter to achieve value creation, but the delivery of added value during the lifespan of the product. This means a longer lasting relationship with one or more clients for one single product.
- 4 **Organisation** Coordinated and cooperative organisation of multiple value creation is a prerequisite for a CBM. This has to be supported by an underlying organisational model that is suitable. No organisation is able to close an entire cycle independently hence organisational models have to support collective organising.
- 5 **Revenue model** CBMs have to be supported by suitable revenue models. Turnover is created differently than in conventional value chains, for example over time (e.g. focused at product-as-a-service with a lease

contract) or due to the joint creation of value. When single transactions are no longer the focus, but instead the 'lending' of the function of a product, a whole range of new revenue models emerge like leasing structures, but also pay-per-view, pay-per-print, etcetera.

It became apparent based on the experiences of both survey and interview participants in the national study on Business Model for Circular Economy (BMCE) that this model was too abstract for respondents to easily implement. As a first step towards developing this workbook, the decision was taken to expand the model with two building blocks. As a consequence, the total set expanded from five to seven. The additional building blocks are: parties and impact.

**6 Parties** Parties work together to close a cycle. Thereby, both the intensity as well as the size of cycle they aim to close can differ greatly. Overall, it is preferable if closed cycles address core activities rather than those on an organisation's periphery. Whatever the differences are, these parties have to cooperate to realise a collective value proposition.

**7 Impact** The final addition to the buildings blocks relates to the ambition to achieve certain results that go beyond revenue, in other words, to generate impact. Striving for multiple value creation ought to show more than financial value. Are their multiple goals? For example CO<sub>2</sub> reduction, social impact (SROI<sup>7</sup>) and financial revenue?. Defining and measuring these desired outcomes is the purpose of this building block.

<sup>7</sup> SROI is a method to measure and reveal societal turnover of investments in an economic and social sense. The goal is to contribute to greater labour participation for people with a distance to the labour market. In the Netherlands, a law exists to realise this in practice. This means that SROI is often a mandatory part of public tenders. See: [www.mvosolutions.nl/social-return-on-investment](http://www.mvosolutions.nl/social-return-on-investment).

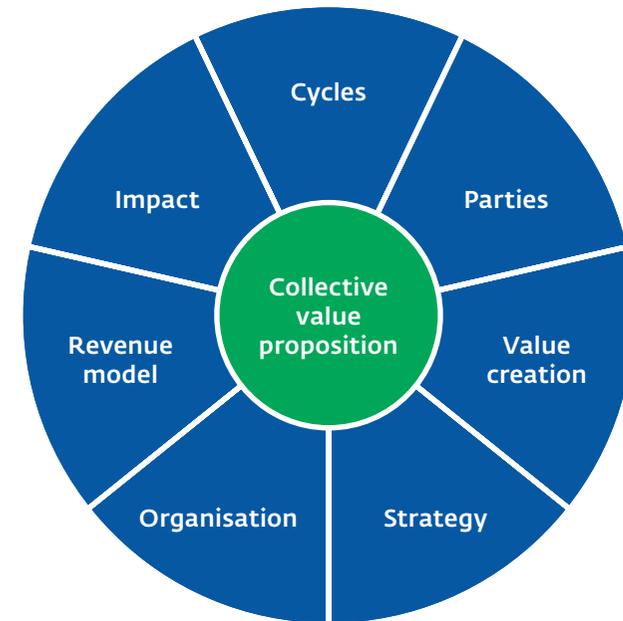


FIGURE 5 CBM (adjusted)

Incorporating these insights results in a model that includes the following seven building blocks: (1) cycles, (2) parties, (3) value creation, (4) strategy, (5) organisation, (6) revenue model and (7) impact<sup>8</sup>. These seven buildings blocks constitute the basis of this workbook and in the next part of the workbook (in the chapter 'Step 3 Buildings blocks') each block is elaborated on and further elucidated by means of questions. Although the building blocks are presented as individual elements, it can do no harm to stress that there is cohesion and interaction. Altering building block one is likely

<sup>8</sup> Another important ingredient is logistics and the organisation of collection and distribution. In this model, however, this factor is not explicitly included.

to lead to changes in building block two, etcetera. It is important to keep this in mind when developing a CBM.

### Contextual factors

Despite the addition of 'parties' and 'impact' to the original set of building blocks, something was still missing: insight into the context in which an organisation operates. To make this more concrete, the following four contextual factors were also included:

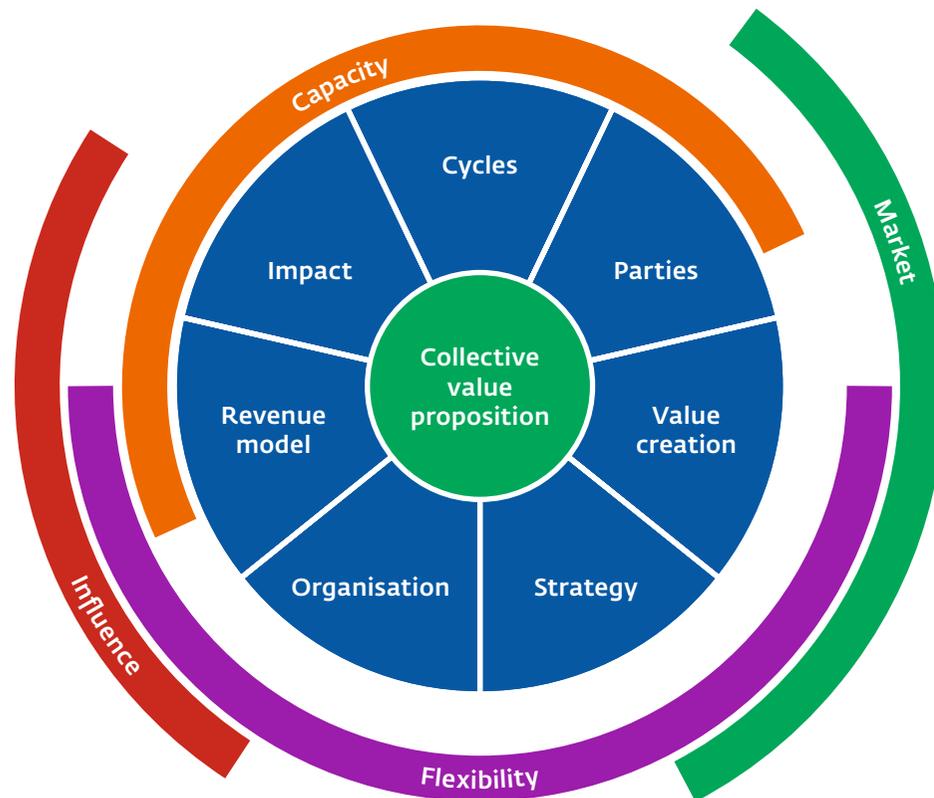


FIGURE 6 CBM II with contextual factors

- a *Market*: who are the buyers of your product (whether or not by means of a service) in your business model – now, and in the future?
- b *Capacity*: what capacities do you or your collaborators in the cycle need to invest in order to operationalise their business model?
- c *Flexibility*: what room for manoeuvre exists in terms of available financing, rules and regulations, technological developments, etcetera?
- d *Influence*: what influence can be exerted and by whom in order to foster the transition to a circular business model?

### Collective value proposition

Lastly, but importantly, there is one aspect of the model that must not be forgotten. Closing a cycle is not a goal in itself, but parties cooperate and work together to come to a collective value or collective business proposition- that is what it is all about. The proposition is both the starting point when working on the CBM, and the end point. Frankly, the collective value proposition is the centre of the business model and therefore not a building block.

If we now integrate the CBM model, the central principles of the circular economy, and the related building blocks, we arrive at an overview of the main line of reasoning that is followed in this workbook. This is visualised on the next page.

Consequently, the approach to develop a CBM is completed and integrated with the line of reasoning that is followed in this workbook. This model has been put forward for consultation and feedback to experts and practitioners in the field with a central question: 'Is this model, and associated approach, useful in practice?'. This process has led to a continuous stream of modifications. The next part of this workbook will elaborate this model further through questions and activities with reference to the infographics which are located in the appendix of the workbook. Part two is also supplemented with Quotes and Facts.

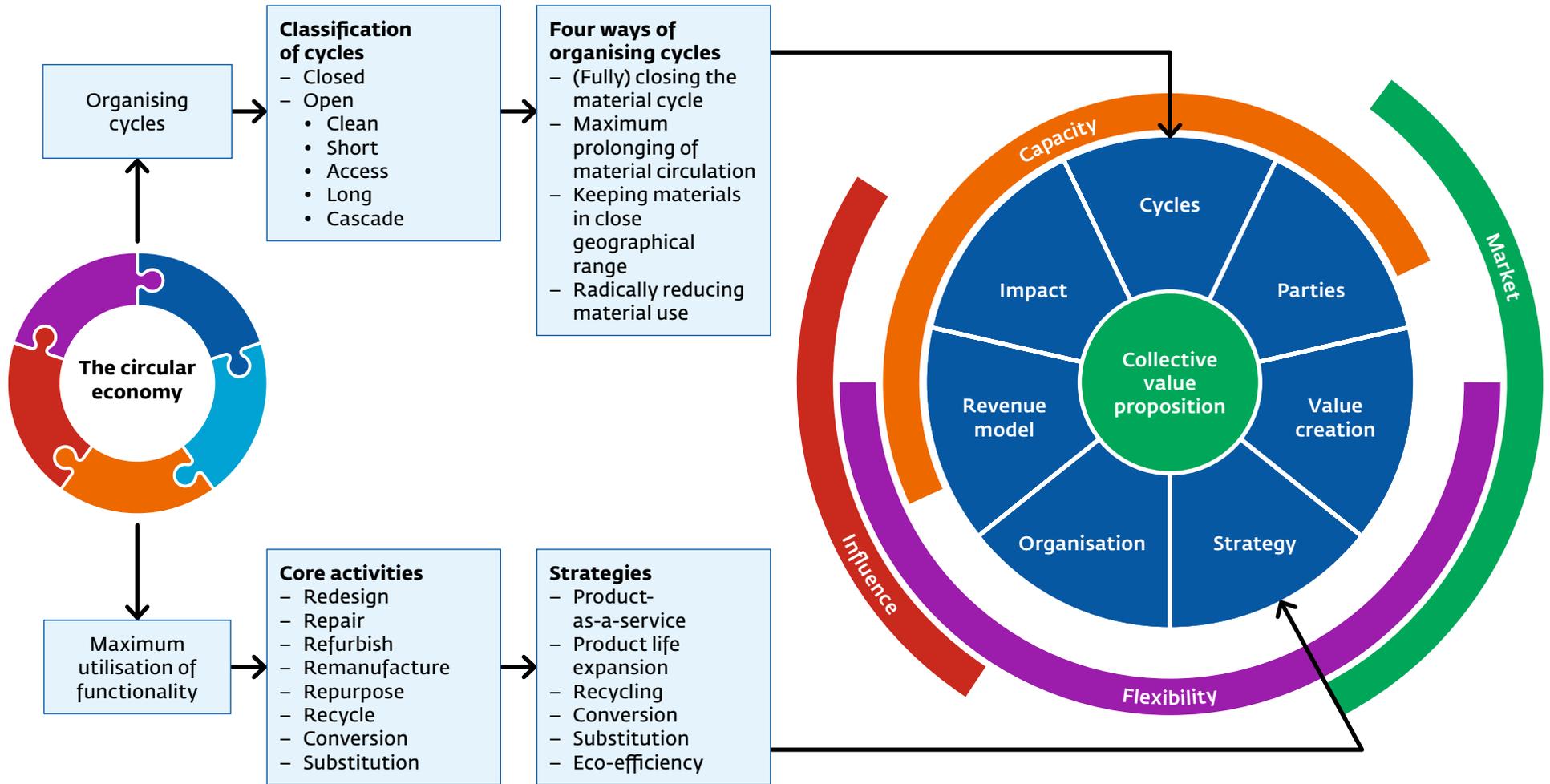


FIGURE 7 The workbook in one glance

## Opportunities for circular businesses

'Circular business models will gain an ever greater competitive edge in the years to come because they create more value from each unit of resource than the traditional linear 'take-make-dispose' model. Accelerating the scale-up (of circular businesses) promises to deliver substantial macroeconomic benefits as well as open up new opportunities for corporate growth. The materials saving potential alone is estimated at over a trillion dollars a year (globally).'

PART II

# Workbook

## Reading guide

In the following paragraphs, all the steps necessary for the development of a circular business model will be addressed one-by-one, in alignment with the conceptual reasoning presented in the previous chapters on 'Business models' and 'the Principles of the Circular Economy'.

As in part I, part II has an academic background, this time with the purpose to provide practical tools for entrepreneurs, policy-makers, CEO's, starters and intrapreneurs that are interested in organising circularity. The coming sections focus on the development of a circular business model – the change management aspects, the process of implementation and working with circular business models. The impact of CBMs on company risks, culture or chain responsibilities are briefly addressed in places but not elaborated on in order keep the workbook condensed and comprehensible.

The workbook provides a relatively simple method which is intended to facilitate the development of a circular business model. For each business model factor several questions and/ or activities are outlined and the user

*'Next to closing cycles it is important to think about the net reduction of materials used within the cycle. Every decrease in materials used generates 'profit' for the environment.'*

(INTERVIEW KIDV)

is invited to answer these resulting in nine sets of questions. As you might have noticed, this means that the workbook follows a chronological, 'linear' approach towards a circular task – the activities are provided one by one and you are asked to go through these activities in a 'step-by-step' manner. The rationale for this is to ensure comprehensibility and readability of the workbook. However, in reality, working on a circular business model is an iterative process in which you can expect to be forced to take a step back, reconsider your choices, and in which modification in one part of your model influences another part, etcetera. Bearing in mind the iterative nature of this process it is important not to regard the activities as cast in concrete, but rather as a set of interconnected building blocks that help to gain insights in how to develop one's circular business model.

At the end of the workbook after all activities on the business model are completed you are taken through a set of closing questions and considerations. These are intended to enable the 'harvest' of the workbook; making explicit what insights the process has provided you with, and how to continue? The workbook ends with a reflection on the 'journey' that will follow now your business model has been developed.

Last but not least we want to stress that the supreme goal of a circular economy is to contribute to a sustainable society; the same goes for circular organisations. Yet, circularity is most certainly not always the same as sustainability. Keep in mind whether the choices you make are contributing to sustainability, or at a minimum they at least have no negative effects on people or planet. A cycle that does harm to local communities or the region completely misses the point. It can be useful to follow the framework of the SDG's when working on your circular enterprise (UN, 2018) as the SDG's provide a broad framework of overarching sustainability ambitions.

## Introduction

In the previous chapters the building blocks required to arrive at a circular business model were revealed. The central idea is that parties come to a collective business proposition together through unpacking the seven building blocks, namely: (1) cycles, (2) parties, (3) value creation, (4) strategy, (5) organisation, (6) revenue model, (7) impact whilst being cognisant of the context in which all business model development takes place.

In the following sections these buildings blocks and factors are developed further based on questions and activities. Working through these questions and activities is designed to enable you to create a circular business model. Below is an overview of the steps expanded on in the remainder of this workbook:

- **Step 1** The first step is to make explicit your ambitions and collective value proposition, by outlining where your organisation (or you as parties) aim to be in five years' time.
- **Step 2** Next, you look at the factors that jointly influence the context in which you seek to achieve your ambitions. These are (a) market, (b) capacity, (c) flexibility, (d) influence. Discuss and review the possible impact of these factors.
- **Step 3** This step concerns going through the different building blocks of the central model. These building blocks are: (1) cycles, (2) parties, (3) value creation, (4) strategy, (5) organisation, (6) revenue models and (7) impact. These building blocks are discussed separately and each provide their own questions and activities.

### *What is the end result of this process?*

- Insight into the collective value creation
- Insight into the cycle(s) to be closed
- Insight into the actors that jointly close the cycle(s)
- Insight into the strategic choices that best fit the cycle in question
- Insight into the organisational form that fits best within the cycle in question
- Insight into the possible revenue models
- Insight into the impact of the proposed business model

### *Taking stock*

After going through all three steps it can be worthwhile to walk through the workbook from the back to the front considering the following questions. What kind of CBM did you think of and how did you end up there? Is the model likely to be workable? We refer to this process as 'back casting'.

### *Critical mass*

*'What I often see is that parties that are doing something want to be cuddled because they are doing something, even if it only has little impact. A few chairs and tables do not have a large effect. It has to gain critical mass. It has to be an integral part of the strategy, maybe even the starting point.'*

DIONNE EWEN (KLIS, 2018)

Eventually you end up at an end conclusion: Does the business model developed seem to be viable and achievable? Or, as it is sometimes beautifully put: 'Do we have a winner?'

## Step 1 Collective value proposition

In principle, one company by itself cannot make a product more circular. Rather, (part(s) of) the value chain is needed, in the form of joint cooperation on the basis of a collective value proposition. Circular entrepreneurship thus starts with the search for shared principles which shape the collaboration that emerges when parties try to close a cycle together. Based on these principles, the collective can look for a joint value proposition.

When seeking shared principles, it is important that the (sustainability) ambitions of your own organisation are clear. Clarity regarding your own ambitions enables you to review and test your ideas and decisions. The chosen value proposition has to fit with your company ambition. In your ambition, you define what sustainability in the broad sense, or the circular economy in a narrower sense, means to you (definition), what you intend to achieve (ambition) and how you are going to contribute to achieving this ambition (strategy/ action). By making these links, you are better able to steer towards your ambition. Concretising your ambition gives direction to content related choices in your CBM design.

Only after concretising the ambition of your own organisation can you start the search for a collective value proposition. In this value proposition the cooperating parties reveal which value(s) they aim to create together, followed by offering this to potential clients. The value proposition is in principle a promise of the collective of parties to their potential customers. Solving the

clients' problem is a core premise. In order to be able to create a collective business proposition it is important to know who the potential partners in the collective are. It is crucial to find partners that are interested and committed to working on circularity. The partners you work with ultimately are defining for the possibilities you will have. More on this in section 3b – Parties.

*'Make the bait attractive for the fish, not the fisherman.'*

(FRANS COLTHOFF, POOLING PARTNERS)

Developing a proposition which can compete with the linear economy is challenging for entrepreneurs. Will this proposition generally follow the rules of the game of the current market, or is the unique selling point that the proposition creates a new 'market' in which different rules apply? Both options have their merits. You do have to choose! This will not be easy, as the rules of the game of the linear economy are currently dominant.

Your proposition is based on a selected ambition level. We distinguish between three levels: (1) reducing the use of (raw) materials and products (eco-efficiency), (2) value retention of (raw) materials and products and, (3) working on restoration – which refers to the restoration of the natural environment and/or social community. These three ambition levels follow from one another; often it starts with reducing consumption, evolves into 'sustanification' (eco-efficiency) and circularisation (be aware: these are not the same concepts), to end up in restoration. Many companies' ambitions currently reside somewhere between the stages of the reduction of resource use, sustanification and increased circularisation for parts of the business operations. Only a few of companies actually have the ambition to be restorative (one example is Interface in Scherpenzeel, the Nether-

lands, see infographic Interface). Reducing consumption, preserving value or restoration all translate into a value proposition in which there is 'profit' for both the entrepreneur as well as their client. This profit translates into three dimensions: social, ecological and financial.

## Activities

Below, three activities are outlined. Create all three outputs and then merge the outcomes in order to arrive at a (collective) value proposition. Describe where you want to be in three to five years (do not move ahead in time too much) and what your shared ambition is.

- 1 One liner** Summarise the core of your idea. A value proposition starts with an idea. What is the idea that you would like to develop together? And for whom do you want to create this value? As far as you can know now: is it a 'gap in the market'? Whose problem do you solve? Go back to the essence of what you want to offer. A mortgage loan for example actually means access to your own house and peace of mind – that is what the loan offers. If you think in this way, about the functionality provided rather than the product or service itself, you'll end up at a completely different value proposition. Formulate this idea clearly, ideally in the form of a (preliminary) one liner. Clarifying your idea, while it may take time and can require multiple attempts, will be invaluable in the long run. Once you have articulated your idea, do one or more elevator pitches for various stakeholders to test whether your idea gets through.

Examples:

- 'From roof waste to resource.' (see infographic Roof2Roof)
- 'Your own shirt back as a boxer short, made by women who can use the support.' (see infographic van Hulley)

- 'The food remains of yesterday are the energy of tomorrow.' (see infographic ReFood)
  - 'Black Bear's process uses end-of-life tires as a feedstock to produce consistent, high quality carbon blacks (see infographic Black Bear)
- 2 Benchmark** The next step is to test this idea against an existing project(s) or organisation with a similar proposition. As you are innovating this can often be difficult. An alternative approach is to compare your idea with current practice by asking critical questions such as: 'how much raw materials are being wasted now, how much CO<sub>2</sub> emissions does that lead to, how much is made by this process and can we find any 'hidden costs'? Testing can be done by looking into similarity of characteristics such as material, volumes, regional set up, etcetera. Which of the characteristics are relevant strongly depends on the business proposition concerned. Therefore, testing starts with the construction of a list of characteristics of your own proposed proposition. The results of the testing process reveal the playing field in which you operate.
  - 3 Distinctiveness** The third and last activity is to make explicit how your collective value proposition will be distinct from your benchmark competitors. To do so, take another look at the possible ambition levels - as a higher ambition level than your competitors can be an excellent way to distinguish yourself from similar propositions. It is possible that your proposition may need to be adjusted in order to be sufficiently distinctive.

*The results of this step is a clear and distinctive proposition, ideally formulated as a catchy one liner, which shows where you want to be in three to five years and which reflects your ambition level.*



## Step 2 Contextual factors

A CBM is developed in a certain area or region and within a certain context. This is translated into four factors outlined below.

### Activity

Check whether any of the four of the contextual factors influence the development of your value proposition. Document your analysis of the strengths and weaknesses of the four factors on the accompanying matrix using key words. Draw a conclusion, similar to how you would do so when conducting a SWOT or DESTEP analysis. For those who have never done so see the footnote for links to these tools<sup>9</sup>.

- a Market** Who are the potential buyers (customers) of the semi-finished or end product and what is your relationship to them? A value proposition has to aim for an old or a new market. Recycling (sheet) glass for example is a completely different task compared to extracting energy from food remains (see infographics Vlakglas Recycling and ReFood). Similarly, offering a product-as-a-service (see infographic Desko) demands a different relationship with the customer than merely selling. Consider whether a market exists, if there are any buyers at all, or whether you have to create the market yourself.
- b Capacity** this relates to the resources to invest in a circular business model that the entrepreneur (or parties together) possess or lack. Capacity can refer to money, but also the necessary competencies (meaning people), technology or networks. Where else is capacity available? Try to look using 'fresh eyes' where potential available capacity could be found in human, technical or spatial terms? For example: How many

<sup>9</sup> See for example [www.toolshero.com](http://www.toolshero.com) or <https://expertprogrammanagement.com>.

## Sustainable procurement

'In 2022 at least 10% of Dutch government procurement has to be 'circular'; this allows the Netherlands to save 1 megaton of CO<sub>2</sub>. Hence, Dutch government institutes have to spend 6 to 7 billion annually on products and materials that are reused, easier to recycle or produced more efficiently. Moreover, the next lifecycle stages are already defined in a contract. Because circularity regards not only product but also process.'

STIENTJE VAN VELDHOVEN, DUTCH SECRETARY OF INFRASTRUCTURE AND WATER MANAGEMENT (SANTEN & PELGRIM, 2018)

square meters of suitable flat roofs does a particular suburb of a city have which could be used to start a solar park?

**SPACE FOR SOLAR ENERGY** *In the Netherlands 5,500 square kms are suitable for the instalment of solar panels: that is 5,5% of the total surface area, while currently, only 12 square km's are being used. If the full potential were used, the Netherlands could in theory generate over three quarters of the total energy demand with solar energy. (Good!, 2018)*

**c Flexibility** What are the options in terms of rules and regulation, (external) financing and technology which enable the parties the best

possible development of their value proposition? Look at possibilities you have yourself to expand your playing field, for example by participating in relevant round tables or other networking groups. Look at national networks such as RVO in the Netherlands or Innovate UK for relevant possibilities and tools. Mining struvite from waste water (see infographic Vitens) is a good example of where a circular business model has been effectively set up by partners within the existing regulatory boundaries. To date, the most commonly named barrier to CBMs in the Netherlands is the legal definition of waste.

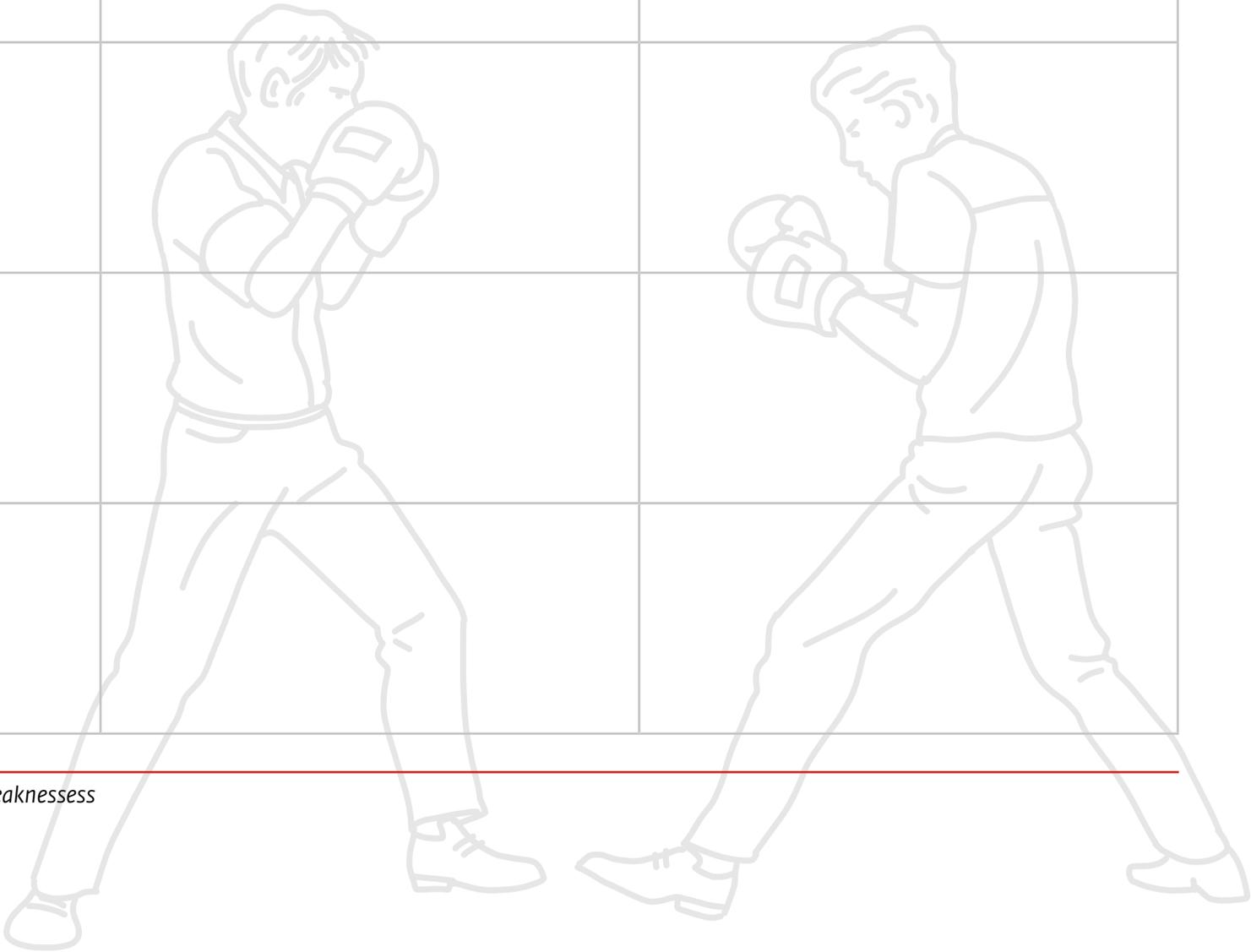
**d Influence** What influence does the entrepreneur or group of enterprises that jointly organise a CBM have to market their value proposition? Conquering the market as a sole trader is something only a few manage to achieve. Do not forget that we are only at the beginning of the transition; meaning even the front runners are often not yet circular. Nevertheless: how have ARN (diaper recycling, see infographic ARN B.V.) and PeelPioneers (cycle of citrus peels, see infographic PeelPioneers) acquired the ability to influence the key parts of their respective value chains and the companies they work with?

**WASTE GENERATION** *In the Netherlands, almost 500 kilograms of waste are generated per person per year. Over half of that total is handed in separated with circa 200 kilograms ending up as residual waste. That means over 50 bags of residual waste per person per year. (Milieucentraal, n.d.)*

*The result of this step is insight into the contextual factors that influence the achievement of your value proposition. It provides insight into the strengths, weaknesses, threats and with these the potential opportunities for your value proposition.*

It is possible that the conclusion of the step requires you to go back to step 1 to alter your initial proposition.

Factors	Strengths	Weaknesses
1		
2		
3		
4		



WORKSHEET 1 Matrix with strengths and weaknessess

## Step 3 The building blocks

The subsequent sections address the various building blocks that are required in order to be able to develop a circular business model.

### 3a Cycles

Core of the circular economy is the closure of or contributions to the closure of material cycles in both the production process as well as the life cycle of a product, without harming the environment or society. The dictum is: design-make-use-disassemble-reuse.

A cycle can be addressed in various ways. We distinguish between four:

- 1 Closing a material cycle (as) fully (as possible). Material returns in the value chain at the same quality level, where feasible.
- 2 Utilising the value of materials for as long as possible; keeping materials in circulation for a prolonged amount of time.
- 3 Acquiring materials as close as possible (geographically speaking) and keeping them in a close geographical range.
- 4 Radically reducing material use (with and without degradation) in the various phases of the cycle.

When closing cycles, certain material limitations apply. We recognise three key limitations:

- 1 It can be difficult to get back distributed materials. Logistics, distribution and loss of materials can all contribute (for example see the infographics of PeelPioneers and Renewi).

*'Sometimes it is even recommendable to think of cycles in a trans-sectoral way.'*

(INTERVIEW GISPEN)

*'Thinking and working together in a trans-sectoral way can be the solution to be able to close the cycle. Often most matches lie beyond your own sector'*

(INTERVIEW INTERFACE)

- 2 It is not always profitable to recycle. Reverse logistics, but also the separation and efficient recycling of materials are often accompanied by costs that are (too) high. This can be overcome by taking this into account in the design process (see for example the infographics of Auping, BMA and Gispén).
- 3 Materials cannot always be used again. This can be due to degradation, environmental influences, the use of composites that cannot be used for anything but the original purpose or particular characteristics of the material themselves. Paper for example can be recycled seven times before the fibres become too short (see the infographic of PaperWise). Another reason can be that the price of virgin materials is so low that there is no market for recycled materials.

The goal is to avoid or overcome the above-mentioned limitations; not only in the design phase, but particularly also in the organisational process of the cycle.

It is certainly important to design products with a focus on circularity. However, it maybe even more important that attention is paid to the circular design of the cycles in which those products and raw materials are being made suitable for reuse.

Furthermore, you also need to pay a lot of attention for the role of the various users in each cycle. Consider carefully what you think the (end)

*'To reduce the impact of fashion trends and stimulate reuse and repair it is important to make modular products.'*

(INTERVIEW AUPING)

user will do with your product or service – and how you will ensure this behaviour. Neglecting various users, often caused by ignorance, leads to material devaluation and chain pollution. Circularity demands a transformation in both product and process, not only product.

### **Activity**

Draw the cycle you want to close. Make sure this fits with the collective value proposition that you have constructed, and that it fits within the context in which you have to operate.

For inspiration look at any of the infographics. Clear examples of mono-streams are Vitens, Vlakglas or PNEB, more socially engaged are WesterZwam or Peeze, and the examples of Roof2Roof and Black Bear show purely technical cycles.

The result of this building block is the creation of an infographic of your cycle that fits with your value proposition. In this infographic the material streams and process steps are displayed.

### **3b Parties**

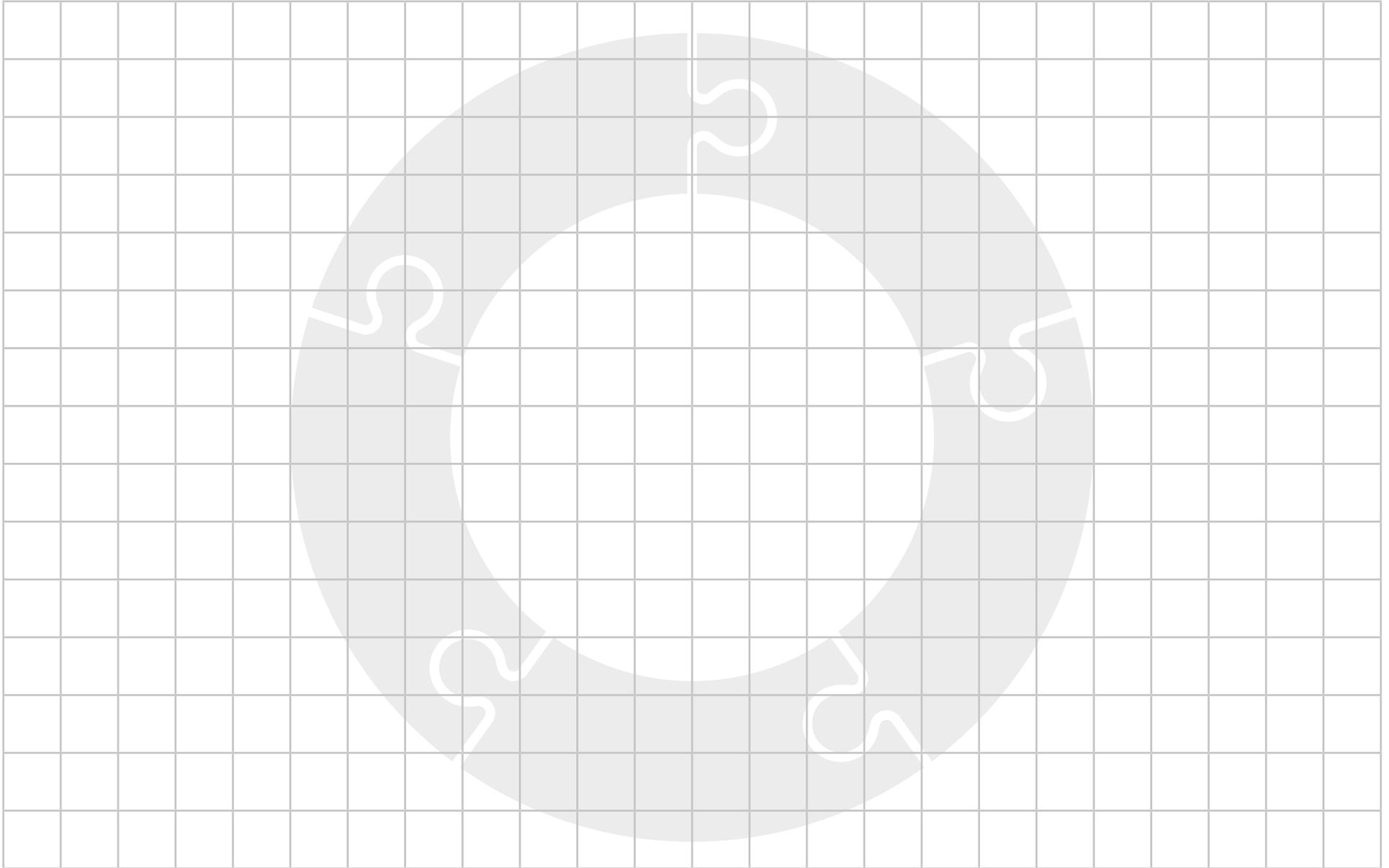
No company can fully close a cycle by themselves. Although a sole company could move towards increased circularity by consciously organising

activities within their own business, ultimately the circular economy asks for the cooperation of partners within cycles.

Transforming a value chain into a value cycle is at odds with the classical value chain-dogma, as it has tended to focus on input-throughput-output models in which the own organisation is the central element. Organising in a circular manner is aimed at closing the cycle. Parties share an organisational responsibility, not only today but over time as well. Much of what must be agreed on can simply be a part of contracts that are set up for a shorter or longer time span. What can make it more difficult is that this is often not limited to one single transaction, but rather multiple transactions as value creation is generated over time. Materials are being used to build cars, buildings and tunnels and are stuck in these objects as material stocks for a certain amount of time. When these materials become available again, the question is who owns it (especially since often these materials are composites) and what their value is. The latter is a topic of fierce debate because who can say now what the value of concrete, sheet glass or bitumen will be in 20 or 30 years from now.

*'To close a cycle it is sometimes necessary to think beyond the closed loop of a product or material stream. Closing a cycle can also be done by reusing materials in another, equally high value application.'*

(INTERVIEW ALLIANDER)



There are various formal options to facilitate the closure of a cycle. The simplest solution is (a series of) contracts that cover a wide range of shapes and sizes as well as different periods of time depending on the various partners that are working together. Whenever a contract is not the preference of the cooperating parties, one of the following legal forms can be an option: (a) private company, (b) association, (c) foundation, (d) cooperative, (e) B-Corp, (f) network and (g) EU legal form. The B-Corp (Benefit Corporation) is relatively new in the landscape of legal arrangements and is a form that highlights certain social aspects. To be a certified B-Corp one has to meet strict standards on social criteria, environmental criteria and transparency. Examples in the Netherlands are Fairphone, Tax-electric and Tony Choclonely.

Whether a formal organisational form or a contract is the best fit depends on the companies that work together and the intensity of the cooperation. Whatever form is selected; it is paramount that you are aware that the types of relations you have with your partners will differ. Some will be proactive, whereas others may be reactive and take up a much slower position in the process. You will also encounter defensive partners, with whom every idea and tool has to be tested by means of pilots and trials before any decision can be made. As you could easily dedicate another book to the ins and outs of relationship management we will not discuss this any further. Nevertheless, it can be worthwhile, prior to and during your first meeting with potential partners, to try and investigate what you are getting yourself in for in terms of the types of people and company you will be working with, and how to best anticipate cooperation with such parties.

That said, more important is the somewhat mental dimension. If a circular business model is to succeed, it is paramount that companies share certain principles, that they agree that there is an intrinsic motivation to do more than just manage resources more efficiently to reduce cost.

**Shared principles**  
*'For circular business models to succeed it is essential that parties share certain principles, that they share the willingness to move beyond resource efficiency and costs reductions towards increased circularity.'*

(INTERVIEW PEEZE)

In addition, working together to close a cycle requires a great amount of transparency and the sharing of knowledge on materials and processes (see for example the infographic of Logge). Knowledge sharing enables improved mutual understanding and distribution of the associated risks leading to reduced risk-tariffs that parties charge each other. Transparency on revenue models and organisational costs and investing in joint 'profit' optimisation instead of individual profit maximisation in the end is beneficial to all parties involved. This means showing your weaknesses and frequently discussing these. Cooperating in such a manner is something you have to get used to: it is the basis on which you can build confidence in and a good relation with your partners – both of which are of great importance.

An 'open book structure' in which all parties openly share the costs that are made could be a useful format. Unexpected cost reductions or increases can be discussed and settled on the basis of openness – hence, this brings you both transparency as well as flexibility (based on the 'Fairphone as a Service'-project led by Circle Economy and Sustainable Finance Lab, 2018). Another format that could be suitable is the 'Mutual Gains Approach'. This is

a method in which the central idea is the recognition and acknowledgement of each other's interests for the purpose of achieving mutual agreements.

It can be a considerable step to immediately work together with the whole value chain on an intensive and continuous basis. A good starting point is to look for your best customer or best chain partner – become a team. This allows you to support each other in the search for circularity, to support each other with finding new projects – together you are stronger than alone.

Relatedly, early on in the process it can be valuable to invest in finding that one party that can operate as a launching customer and that can guarantee initial sales. Boosting your circular endeavours at the start can be of fundamental importance to your circular (business) case taking off. Look for example at the bigger organisations such as governments: there are more than enough parties that are moving towards circular procurement. This offers a useful stepping stone. For governments (at least, in the Netherlands) circular procurement always leads to one of the following three contract forms: sale – buy back (to the supplier); sale – resale (to another party) or paying for the service or performance (product-service systems).

### Activity

Take the cycle you drew in the previous step and include the names and roles of the various partners that are involved at the relevant phases of the cycle. It might be that only several are known while others remain to be found. Do not let this reality obstruct you for the remaining development of your cycle, however do start the process for looking for partners. For example, think of:

- 1 Participating in meetings related to the circular economy – nationally but also regionally;
- 2 Become a member of (sector specific) networks;

- 3 See what your trade association organises and participate;
- 4 Put an advertisement in a local entrepreneurial magazine;
- 5 You can also take it a step further and join an international trade mission.

When looking for parties to collaborate with, regional possibilities often emerge when thinking about cycles in a broader sense. Therefore, it is important to examine the geographical environment from a wide angle. Look for example at the infographics of CircuWear, Vitens or Delfland. Moreover, often opportunities arise outside of your own sector – hence, also take the time to look beyond the boundaries of your own industry.

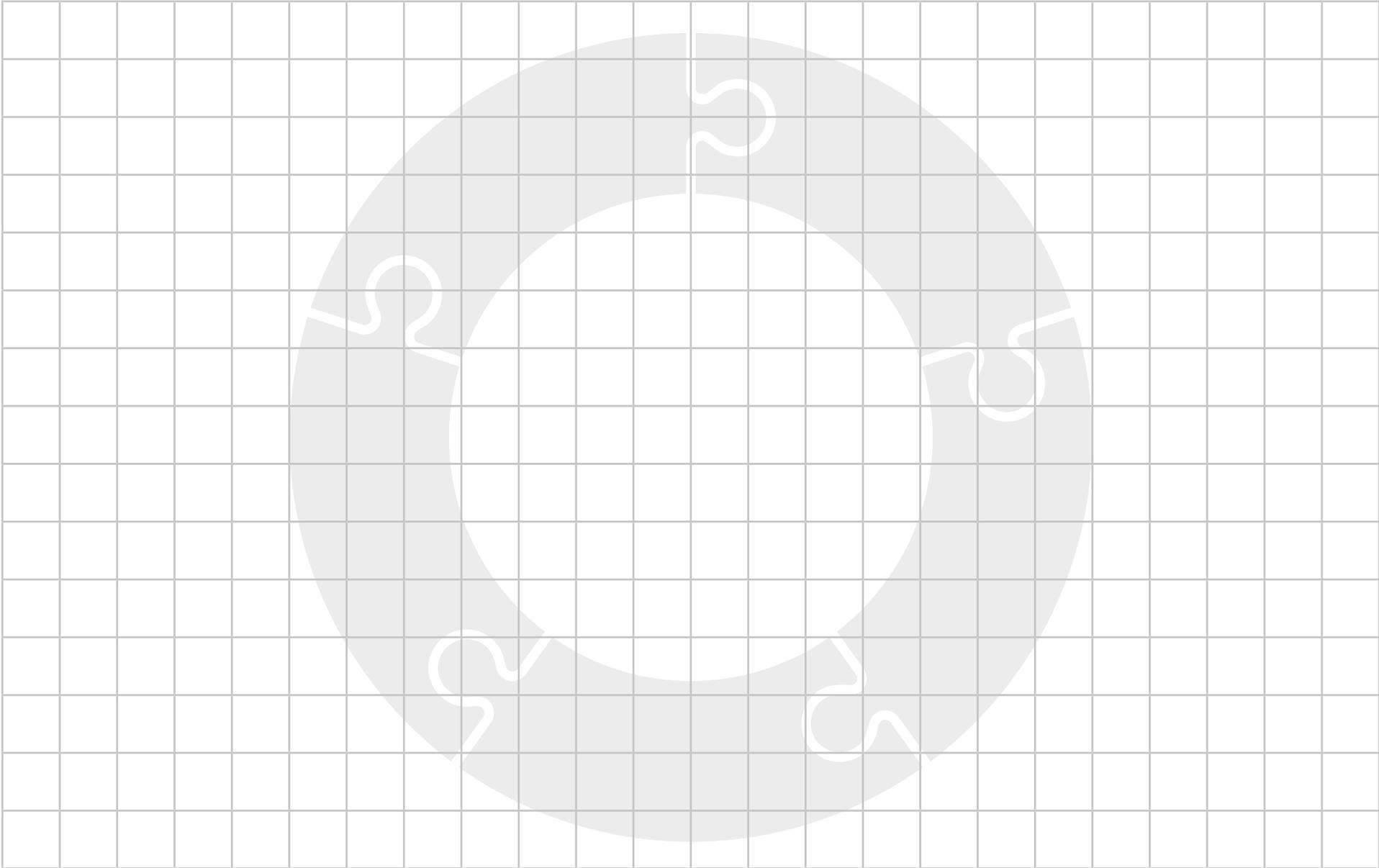
*The result of this building block is an expanded infographic of the cycle based on a collective value proposition: this time the parties that have to organise the cycle are also included.*

### 3c Value creation

This workbook is underpinned by the idea of organising value creation by working on value retention and possibly value generation. A key premise is that this will lead to more than just financial value. We call this multiple value creation.

*The government as launching customer  
'Every circular procurement trajectory creates  
a new, working circular business case.'*

JOAN PRUMMEL (INTERVIEW, 16.03.18)



The challenge of developing circular business models is thus the simultaneous achievement of multiple values. Often the focus is (not always on purpose) on achieving ecological value by improved and extended use of materials (and the products made from those materials). However, when the concept of multiple value creation is broadened, the contribution to a wider range of ‘capitals’ such as social, ecological, institutional and other forms of capital becomes key. This six-capital conceptualisation is ‘loosely’ based on the Integrated Reporting (IR) approach that is currently becoming increasingly popular in the domain of accountancy.

The Integrated Reporting approach in turn is based on the Triple-P concept, which was introduced about twenty years ago by John Elkington in 1998. In the now world famous book ‘Cannibals with forks’, Elkington argued that companies should systematically and simultaneously work on the creation of multiple values. This resulted in the concept of ‘people- planet-profit’ (PPP). Two decades later this concept is the most frequently used conceptualisation of multiple value creation and sustainability. Not surprisingly, dozens of varieties exist, but we do not have the capacity to elaborate on here.

Further elaboration of these 3P’s leads to a model existing of six capitals. These are the following:

- Financial capital → money
- Material capital → assets, also called ‘stocks’
- Intellectual capital → collective knowledge and skills
- Individual capital → peoples’ competences
- Social capital → networks and the access to those networks
- Ecological capital → ecosystem services and biodiversity

The relation between those three P’s and the six capitals will not be further elucidated. For those interested, you can find additional sources in the literature overview, see in particular Gleeson-White (2014).

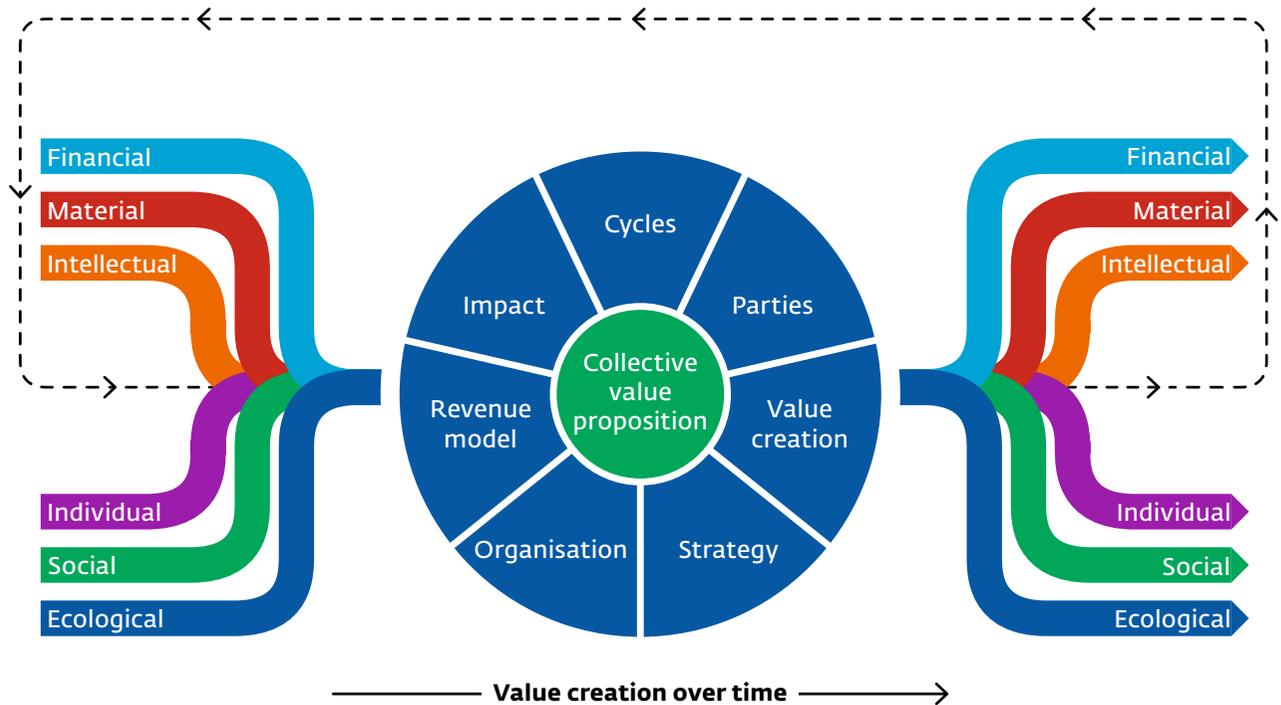


FIGURE 8 Gleeson-White combined with the CBM model (Source: Gleeson-White, 2014)

Values	Step 1	Step 2	Step 3	Step 4	Step 5
E					
S					
F					

### Activity

For each step of the cycle drawn thus far explore how these contribute to the 3P's, or in other words: review your cycle in light of sustainability considerations. Ask yourself the following questions: 'Do we create ecological value and how? How is this measured and determined, which indicators can be used? For example, CO<sub>2</sub> reduction? Or the measurement of the decrease in the use of fuel, gas and virgin materials? The question of relevant indicators has to be asked two additional times – so in total three times (once for each P). The sharper the indicators, for example formulating them following the SMART method, the easier this leads to measurement with subsequent advantages for transparency, for cooperation, and for all those other previously mentioned factors that contribute to successfully closing cycles. The end goal is that your cycle creates value on at least one of the People or Planet P's – the impact on the other P's can be neutral, but not negative. A cycle that creates ecological value but does damage to a local community of course misses the overarching goal of sustainability.

This 3P thinking can, depending on the proposed cycle/ business proposition, be expanded and further nuanced with one or more capitals from the six capitals outlined above. However, be mindful not to be to 'plentiful' with the inclusion of multiple capitals, because before you know it you are stuck in a complex methodological story of operationalisation, indicators, mutual influences and dependencies, etcetera.

The result of this building block is a matrix in which the value creation for the above-mentioned capitals for each of the steps in the cycle is displayed.

### 3d Strategy

Strategies are the approaches to action that organisations can deploy to achieve the core activities of the circular economy as described above. Strategies can be purely technical (which in principle means they overlap

with the activities) but often also relate to organisational perspectives of action, or a combination of both. We identify six:

- *Product-as-a-service*: this regards the process in which the use of a product is sold as a service and the ownership of the product (washing machine, central heating systems, cars, lawn mowers, etcetera) often remains with the producer. This strategy can lead to what is called 'dematerialisation'<sup>10</sup>: you buy (or rent or lease) the use of a product, but you do not own it.
- *Product life expansion*: is the ambition to use products as long as possible, ideally in their original state. Think of office supplies that find their way to second or third users, second-life cars or refurbishment of electronics (see for example the infographics of Canon and Desko). It is important to stay 'in the loop' and responsible after 'moving' the product to a foreign market for example. Either by legally staying accountable or by making clear agreements with the next party in the value chain.
- *Recycling*: partially or fully recovering (raw) materials, parts or products while preserving value for as much as possible. Be aware that this might relate to low-value (for example mattresses that become isolation material, clothes become carpets, etcetera) versus high-value recycling (e.g. sorting plastic per type and recycling until it is almost a virgin mono-flow).
- *Conversion*: key is the conversion of residual materials (such as old tires), residual streams (such as CO<sub>2</sub>) and residual value (such as a surplus of energy) into a new (base) product – like old tires to carbon black, CO<sub>2</sub> to

<sup>10</sup> With an emphasis on can. Unfortunately, there is also a real risk of using more products, as is visible now with people that lease their mobile phone. Each year they get a new one, all the while they take little care for the device as it is not their property. Hence, only when combined with strict agreements in which shared responsibilities between producer and user are ensured, product-as-a-service strategies can lead to dematerialisation.

methane, electricity to hydrogen or sewage sludge into energy; see the infographics of Black Bear, ARN B.V.).

- *Substitution*: replacing one raw material with another; with substitution a lot of attention goes to the so-called 'biobased' resources (stems, roadside grass, etcetera). It is important to select biobased materials that do not pose any negative impact on sustainability, because this is not guaranteed for all biomass streams (see for example PaperWise).
- *Eco-efficiency*: Even though this strategy does not really fit in the list of circular strategies, reducing the use of raw materials, energy, mileage, etcetera is a very worthy to pursue and often a first step on the path towards more circularity. We often see this in practice (see for example the infographics of Suiker Unie and Canon). An advantage of this strategy is that it is easy to calculate. Less kilometres are easily translated into reduced fuel costs, less CO<sub>2</sub> emissions and less maintenance.

In practice, we often see a combination of these strategies, which given a certain context result in a business model. We assume the selection of a *primary* strategy that fits best with the previously formulated value proposition. It is worthwhile to consider complementing this with a *secondary* strategy. For example: Gispens' primary strategy is 'product life expansion' yet when a piece of furniture can no longer be repaired or refurbished, they deploy the recycling of materials as a secondary strategy. WesterZwam converts coffee grounds into mushrooms (primary) and supports this by offering their products as a service (secondary). When we look at the Water cycle we see that the primary goal is the cleaning of water, but this process also converts waste water into a whole range of raw materials, energy and other things.

### *Make clear strategic choices*

We recommend that you concretise the consequences of your strategic choices as much as possible. It is therefore useful to make agreements on

what you are striving for, for example, a percentage of recycled materials which is as high as possible. It is also important to include a goal for when this will be achieved even if it is aspirational or a stretch-goal. For example: in 2025 we will deliver 50% products that can be recycled; in 2030 75% of our end product has to consist of recycled materials; or in approximately 5 years' time we will only deliver CO<sub>2</sub> neutral city transport, etcetera.

Keep in mind that (raw) materials degrade, especially with strategies based on the expansion of product lifespans. Things wear and materials degrade. Officially this is called 'leakage'. It is relevant to take into account the percentage of expected leakage when choosing a certain cycle design and organisation.

### *Activity*

Choose a primary strategy, and when possible also a secondary. Be concrete. While it is nice to say that you want to develop a product-as-a-ser-

*Speaking of changing  
'In many branches there is much resistance against the shift from ownership to services. At the office we pay per copy and we lease a car that will never be our personal property. But with lighting this is different. You have to deal with the construction sector, that wants to buy and pay things.'*

FRANK VAN DER VLOED, GENERAL MANAGER  
LIGHTING BENELUX, PHILIPS. (VERHEGGEN, 2016)

vice, describe *what* exactly you are developing and the role you think a secondary strategy can play. Moreover, it is important to not only choose your strategy, but to also describe the relevance of this strategy for the collective value proposition.

Next, review your chosen strategies by comparing them with your individual ambition(s) (as explained in step 1). Do these strategies help you to achieve your ambitions? If not, would another strategy or combination of strategies be a better match?

*The result of this building block is to generate insight into the primary and secondary strategy(s) that fit best with the proposed collective business proposition and individual organisational ambition(s).*

**3e Organisation**

Circular entrepreneurship asks for two organisation tasks: internal and external. On the level of your own organisation it is important to explore how the internal organisation (in terms of current strategy, processes, culture, competences and systems) fits with the demands of organising in cycles. It is about how an organisation addresses the principles of the circular economy, but also the position, the attitude, of employees towards participation in the transition to the CE. It is important to identify which

internal organisational aspects are of particular importance for participation in the CE. Often heard advice from companies already active in the CE is to install a dedicated staff member which is responsible for implementation of CE principles and who operates horizontally across the organisation rather than being based in a vertical team. However, it is important that this person operates as a facilitator, rather than as a CE expert whose remit is to tell the rest of the staff what to do. Rather they need to inspire and make connections within the organisation. Furthermore, it is particularly important not to surpass other people's expertise - key is to ask for help and include colleagues with deep expertise on specific issues such as PR, logistics, design, etcetera.

In addition, we look at aspects of your enterprise such as knowledge, procurement and sales policies and the division in departments. This is important because you are not very credible if you do not practice what you preach – which means as much circular procurement as possible (also aimed at process and not only product), but also consider the structure of the organisation (more holistic, integrated and less in silos), culture, mission, vision and strategy.

In terms of external organisation, or the organisation of the cycle (the collective of parties), we usually see the following forms:

- 1 **Organisational ecology:** a collective of parties that works together on the basis of quality, without legally binding formats. Think of organisations with shared principles, interests and work agreements, without one party taking the lead.
- 2 **Coordinating body:** several parties work together in a collaborative taskforce that helps to organise the cycle, but does not participate itself. Core is that one party coordinates for the benefit of all other parties involved.

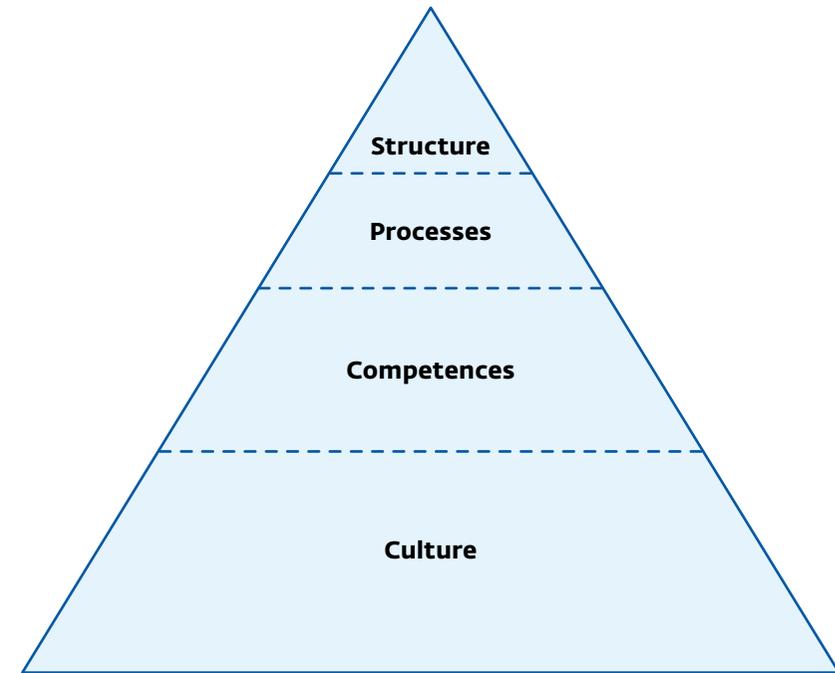


FIGURE 9 The change pyramid

- 3 **Chain management:** a cycle is closed by several parties of which one is clearly the coordinator and decides on the formation of the cycle. In the manufacturing industry this often is the producer or designer of the end product, under whose coordination semi-finished products are produced and reverse logistics is arranged (see among others Circuwear).

In addition to the above three forms one additional option exists:

- 4 **Incremental chain integration:** this form is not aimed at finding a form for cooperation with chain partners, but rather is aimed at integrating steps from the chain within your own organisation. For example, Wolkat (NL) started as a textile recycler. Eventually, they incorporated the step of sorting textiles and included the production of threads and

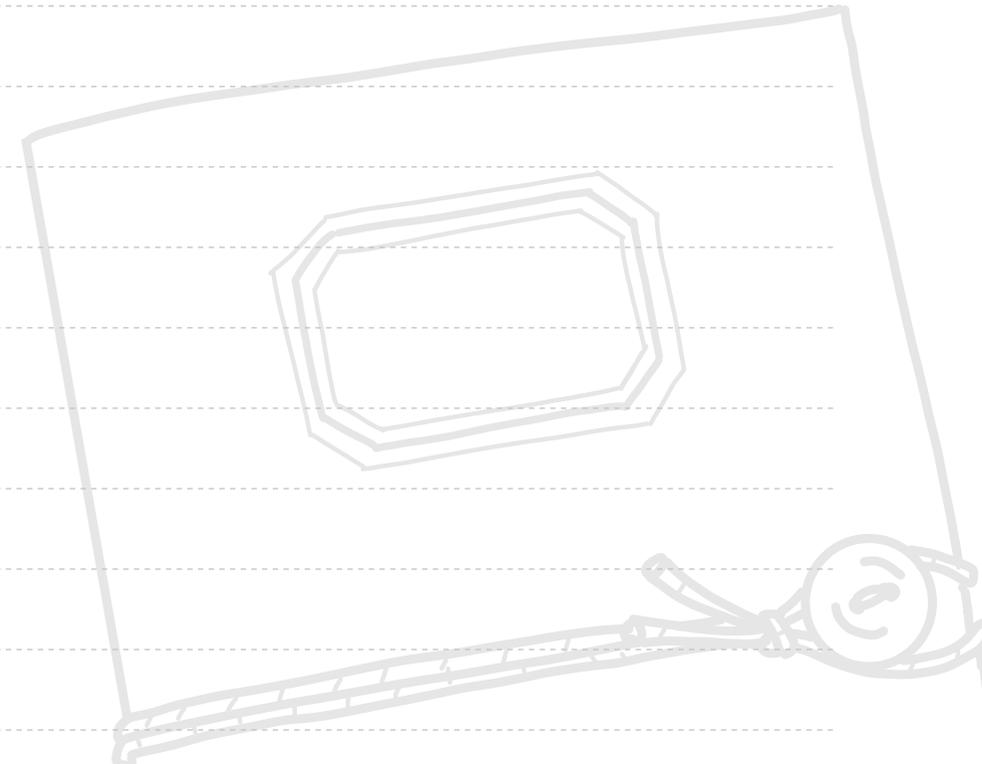
yarns of the recycled textiles as well. This enabled easier balancing of activities and guarantee of quality. Of course, in general an organisation is unlikely to integrate all steps from the cycle and is hence predominantly dependent on one of the other forms or cooperation for the remaining partnerships.

Each form has its own strengths and weaknesses; there is no better or worse form. It is merely a matter of experimentation until you have the right fit. In practice, every cycle and collection of parties will have to see for themselves which form suits best. Moreover, neither is it unthinkable that at some point, the organisation could shift from one form to another.

**Activity**

Next you are asked to explore two somewhat trickier questions - because they are intentionally broad. The first is about your own organisation. The second question relates to shaping of the 'new' organising.

- 1 Examine your own organisation with as much patience and detail as possible (intentionally seeking to identify any potential blind spots) and ask yourself: to what extent you are ready to cooperate with other parties in the cycle? We could of course provide you with a whole list of aspects, but this question is at the heart of our concern. What needs to change in your organisation? What is required in order to be able to do so? And consequently: is your organisation ready to cooperate in a different way than you currently do now? These are the pivotal questions.
- 2 Next look at the collective of your potential cycle partners you proposed in step 3b. Which of the above mentioned organisational forms fit best? This may not always be clear at the start. Hence, for this question the same applies as above: examine with as much patience and detail at the implications of your choices for the collective value proposition, the cycle and the parties that are involved and make a list of agreements that you have discussed and in principle agreed upon allowing you to start the process of working together.



The result of this building block is to gain insight into the primary areas of concern for your own organisation which are necessary to address before implementing the CBM. In addition, insights are gained related to the best fitting organisational form for cooperation in the proposed cycle.

### 3f Revenue and calculation models

By organising in a circular manner revenue models will also change. Revenue tends to be made over time (lease or service models), based on a pay-per-view (such as Blendle or Topics) or due to the joint creation of value in a value cycle (so-called cascading). This means that costs, risks and revenues need to be shared by the parties involved, over time. This also implies that certain (raw) materials generate value more than once and at more than one place in the cycle. Synthetic materials for example can be used in various ways for various products, for example bumpers, toilet seats, or roadside poles.

Conventional thinking on revenue models is not really suitable for this kind of value creation. This is due to the fact that conventional revenue models are based on one transaction moment, complemented with a wide range of subscription, service and lease models. Commonly products are sold once and lose their value after this initial use. However, when these processes are re-organised in a circular way, the same product can be sold multiple times.

The consequence of this development is that new questions arise on financing and the division of risk. Who in the cycle is the accountable party? Who is responsible? Who carries the majority of the risk and if they are shared, what does that mean in practice? These are challenging questions that are not easily answered. From experience we have come to learn that when parties have insufficient knowledge and insights into one another's

activities, they can get reluctant and fearful of unexpected risks leading them to seek financial security and simultaneously generating unnecessary costs. 'Transparency and clear agreements' are therefore the central premises, even though they may be challenging to implement at first.

There are various forms of revenue models that fit with a CBM. We distinguish between five main forms:

- 1 *Sales model*: no one said you cannot sell things in the circular economy. However, this can/should be combined with a take-back or service-agreement (or both). We often see the strategy of eco-efficiency being combined with sales (see e.g. the infographic of Coolrec), but a strategy of product-as-a-service in the form of sales with an extensive service agreement is also a good example (as for example done by Interface);
- 2 *Servitization model*: only the function of a product is paid for. Needless to say, this model fits the strategy of 'product-as-a-service' (see the infographics of Canon and Gispén);
- 3 *Cascade model*: the core is to stack earnings (possibly over time) in one cycle (see for example the infographic of WesterZwam). This means that earnings arise in the form of joint efforts between parties at multiple aspects of your product or service (see for example PeelPioneers);
- 4 *Revival model*: raw materials, parts or entire products are used multiple times in various cycles. The same window, the same sand or the same chemicals are used multiple times (see for example KIDV and Urgenda);
- 5 *Hybrid model*: this is a slightly maverick model, yet relevant to consider. It is becoming increasingly easy to pay with more than only financial means as a result of among other things technology like Blockchain. This means it is becoming possible to use a mix of for example electricity, care or mobility as a means of payment. We cannot (yet) make a clear link with practical examples nor with previously mentioned strategies given the innovative nature of this model.

Whatever model you choose, consider whether your revenue model, and the values and benefits you generate with it, are ethically defensible.

### **Calculation models**

A second aspect that needs to be discussed is that, regardless of the business model and strategy, costs will be incurred to maintain the cycle. This means that cost-calculation models have to be deployed that provide insights into factors like the costs of recycling, conversion, substitution, etcetera. Also the calculation of residual value is an important factor for CBM's. Hence, a distinction is made between five calculation models:

- **The cost of lifespan and use models** What is for example the Total Cost of Ownership, Total Cost of Maintenance, Total Cost of Life-Cycle?
- **Residual value models** What is the residual value of a window-frame, a car part or a batch of used concrete? Do not forget that in a CBM, the revenues are distributed over multiple transactions and over a longer period of time.
- **Transformation costs models** What are the (investment) costs to for example to recycle a tonne of paper, textiles or bitumen?
- **Conversion models** What are for example the costs to convert a ton of CO<sub>2</sub>?
- **Substitution models** What would it cost to (partially) use bioplastic instead of crude oil?

Currently it is certainly not common for accountancy or administrative offices to work with these kinds of models. Concepts like Total Cost of

Ownership are increasingly being used, but ask the question regarding residual value and the answer will often remain unknown. Calculating revenues and costs for a joint effort between parties is even more unusual. This challenge also occurs when applying for a bank loan.

### **Activity**

Choose a selection of (a mix of) revenue model(s) that fit best with your proposed value proposition. Working with a mix of multiple models is perfectly fine. For example, combining sales with a servicing contract and (partially) pay-per-view or pay-per-use. Secondly, choose one or more fitting calculation model(s).

Document which revenue model (or combination of revenue models) you choose and use the second column to note the related calculation models.

*The result of this building block is an explicit choice of revenue and calculation models that support the cycle and value proposition.*

### **3g Impact**

In an economy where circularity plays a major role, in addition to sustainability, there is a need for the valuation and eventually the judgement of companies' level of circularity. At this point in time, no common criterion or standards exist and the chances that this will change anytime soon are low. This is a topic that is being currently worked on within the Netherlands and wider EU.

**REDUCTION OF GREENHOUSE GAS EMISSIONS** *The Club of Rome compared developed scenarios for five EU Member States and concluded that renewable energy and energy-efficiency alone can lead to a 50% reduction of greenhouse gas emissions. When strategies for a circular economy are also included, this could rise up to 70% reductions. De Wit, M. et al., (2018e)*



This is what the European Union currently states about measuring circularity: 'In the transition to a more circular economy, monitoring the key trends and patterns is key to understand how the various elements of the circular economy are developing over time, to help identify success factors and to assess whether sufficient action has been taken. The results of monitoring should form the basis for setting new priorities towards the long-term objective of a circular economy. They are not just relevant to policy makers, but should inspire all and drive new actions.' (EU, 2018).

In the Dutch report 'Circular Economy: What we want to know and what we can measure' (Potting and Hanemaaijer, 2018) a proposition is made for a monitoring system with indicators through which both the transition process as well as the achieved effects are measurable. Monitoring of these effects is already partially possible, especially for raw material use, greenhouse gas emissions, waste and the processing of waste. Not every indicator in the proposed monitoring system can be measured yet and particularly for the transition process, not much information is currently available.

These examples show that the call for metrics and monitoring is growing, but that in reality existing effective and well-manageable indicators are still under development and will hence take a while. Nevertheless, progress in terms of circularity will have to be measured one way or the other as otherwise, the risks of being accused of greenwashing are far too big.

Therefore, it is useful to consider and start working with certain measuring techniques. Our advice is to make your own (preliminary) definition of the CE and specify your contribution to your defined CE. This makes displaying your impact manageable without ending up in an endless discussion on definitions. You can express your results in a combination of relevant indicators such as CO<sub>2</sub> reduction, the percentage of recycled material used, the

percentage material that can be recycled after use, reduction in amount of kilometres for transport, reduction of tonnes of virgin materials used, etcetera. An additional solution could also be to use an 'Environmental Product Declaration'<sup>11</sup>.

**ALLIANDER** *developed their own formula to measure circularity: % recycled material + % material that can be recycled after use/ 2= % circularity.*

In addition to these 'hard' indicators more and other kinds of indicators emerge as well. SROI for example is becoming increasingly popular, similarly to ecological indicators such as biodiversity levels.

It is worthwhile to expand your focus as it facilitates the question of whether or not your CBM contributes to one or more societal challenges. For example, think of the task to mitigate and adapt to climate change, the transition to clean energy or one or more of the SDG's<sup>12</sup>.

### Activity

To be able to generate insights into your results you need to address two coherent activities:

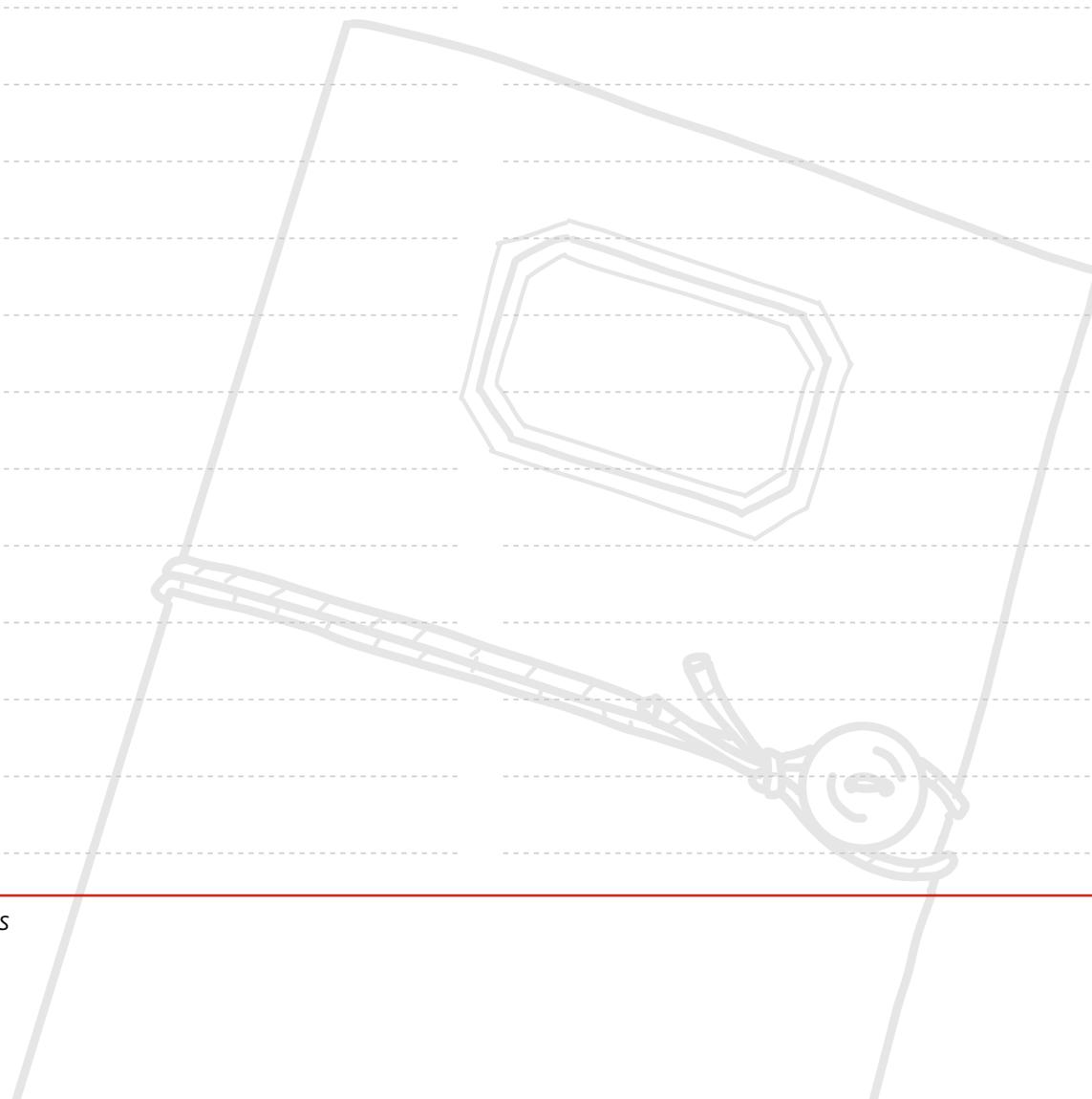
- 1 Define what kind of impact is relevant to your business. In other words, what factors can and do you want to be judged on? Where do you want to excel or be known for? Here you can use both hard (CO<sub>2</sub>, KM reduc-

<sup>11</sup> An EPD (Environmental Product Declaration) is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products ([www.environdec.com](http://www.environdec.com)). EPDs are labels that disclose the life cycle environmental performance of products using predetermined parameters. They are based on a Life-cycle assessment according to ISO 14040 and ISO 14044. The relevant standard for EPD is ISO 14025:2006, which refers to "type III environmental declarations" (Bron: [www.iso.org/standard/38131.html](http://www.iso.org/standard/38131.html))

<sup>12</sup> [www.sustainabledevelopment.un.org](http://www.sustainabledevelopment.un.org)

Hard indicators

Soft indicators



tion, biodiversity increase) or soft indicators (more people at work with special needs, less accidents, etcetera); it is also possible to use the 3P or the six capital format.

- 2 Does your impact fit in your country's relevant policies related to the climate, energy or other societal tasks? If located in the EU also look at European policy as well as the SDG's. How does your impact contribute to the SDG's, and to which ones more specifically?

*The result of this building block is the determination of a coherent set of hard and soft indicators that are in line with current policies and the SDG's.*

## Taking stock

In the previous sections you worked to develop a CBM by following three steps:

- 1 Determining a collective value proposition
- 2 Determining and considering the contextual factors in which your CBM operates
- 3 Defining and determining what the seven building blocks of your/ your collective CBM look like.

When you merge all the outcomes of the activities, the result is an overview of what your CBM could look like, both for your individual organisation and positioned within the cycle.

It is wise to go through the book once more, this time from the end to the beginning reflecting on the following questions: What did we develop and how did we get there? Is our model likely to work in the current context? Going through these steps will support you to create a CBM, or at least an idea for a CBM. That all said, it is an illusion to think that the model is now

finished; rather the foundations are in place. Put away the results, sleep on it, discuss it with parties whom you trust and will be constructively critical, look around and scrutinise other parties' efforts and thereby test the viability of your own idea.

### *Where are you in the process?*

In chapter 3 of the workbook ('Principles of the Circular Economy') we spoke about the Cycles Ladder. This ladder exists of five 'strides', namely:

- Phase 1: in-house circularity
- Phase 2: partial chain integration
- Phase 3: material mono-flow cycle
- Phase 4: organisation ecology of companies and parties
- Phase 5: organisational economic system

Having gone through the workbook, can you determine where on the Ladder you currently reside, and where you would like to end up when further developing and implementing your CBM? Does this match your ambitions and collective value proposition? We recommend taking your time to carefully consider these questions. Your answer to these questions can inform your decision to further develop and implement your CBM, or to reconsider some of the choices you have made and re-work your CBM idea.

## Reflection

This workbook enables you to gain insights into the world of circular business models and supports you to develop a CBM. Recognising that you are at the start of your journey, having gone through all the steps and closing activities it is time to reflect on the process and the knowledge you have acquired. The following section sheds some light on the reality of circular entrepreneurship and provides a final set of tips and insights.

### *Practical tools*

Our economy is still organised in a linear fashion, thus, every entrepreneur, organisation or cluster of parties who embark on the journey of circular entrepreneurship will encounter a myriad of challenges. For example, think of the instances where other parties do not understand what you are doing and why, that the municipality, the tax authorities or the accountant do not cooperate, that clients or suppliers like your story but find it too tricky to actually play a role in your cycle, that price technically you cannot compete, etcetera, etcetera, etcetera. This and much more, is the everyday reality of a circular entrepreneur. Therefore, we provide you with a set of seven tips and tricks to start as a circular entrepreneur and implement your CBM in practice. These tips are implicit in the previous pages, yet are relevant enough to be clearly spelled out once more.

- 1 Developing a well-functioning CBM takes time; more time than is associated with conventional BMs. Take that time, both in thought as well as practically. A circular economy will emerge, but not from one day to the next. So be forgiving of yourself and your partners – organising circularity is a process of growth.
- 2 Choose the partners that you include in your cycle with the utmost care; not only business-wise or technically, but particularly also based on shared ideas and principles. It is about more than a 'deal'; it is about cooperation, experimentation, attempting, and making mistakes.
- 3 Identify the 'place' of your circular activities in your portfolio of endeavours that you as a company but also you as a group of partners are doing. Is it something in addition to your conventional activities or is circular entrepreneurship the core activity? Clear choices allow for better views on flexibility, capacity, required investments and expected results.
- 4 Circular entrepreneurship demands clear strategic choices. This is and remains difficult, because between your choices and the actual implementation of a CBM lies a process with many hurdles and pitfalls. This reality applies to 'conventional' entrepreneurship, let alone circular entrepreneurship. Selecting the 'right' strategy, one that fits with the context, with available competences, that fits the institutional framework in which you have to operate... is ultimately a process of trial and error.
- 5 Circular entrepreneurship is not a matter of course - it is a challenging organisational (and change management) task. Do not harbour any illusions - it means hard labour. Mark a clear spot on the horizon that you want to direct your business towards by means of a clear ambition. What impact do you want to create? What do you want to be judged on? If you do not set a clear ambition you risk losing track of what you are doing and why along the way.
- 6 We must discover a lot, develop and change a lot when it comes to circular entrepreneurship – implementing circularity is a complex task. This applies mostly to our revenue models and the underlying models we use to calculate costs, value and revenues. We are currently confronted with the fact that the whole fiscal and administrative system is organised in a linear way. Moreover, we do not know yet how to determine future residual value.
- 7 Circularity is a large business opportunity – your circular enterprise can without a doubt also be a commercial success story. So long as your values are multiple, and not only financial.

Possibly the most important take home message, is that 'the' circular economy does not exist. Circularity encompasses a broad pallet of activities

that range from slightly - to very - circular. It is crucial to determine clearly what is useful and appropriate in a given situation. Remember: what is circular is not by definition sustainable and the other way around.

And last but not least, dare to ask questions! You do not have to do and invent everything yourself, but you can use the knowledge and expertise of other parties and experts. Many people before you have been 'experimenting and trying'.

## Summary

*'It is not more expensive, it does not take more time, it is much more fun, and it is much more sustainable. That is the summary of what circular building is to us.'*

ERIK KOREMANS, REXEL, INTERVIEW 27.03.18

## *A final note: the journey has just begun...*

Designing cycles and working together in those cycles raises questions and issues regarding change management. The methodology outlined in this book mainly provides insight into how a cycle can be developed. The book does not address the change management aspects associated with developing a cycle.

Designing a cycle means a very difficult innovation is pursued. An innovation within the own organisation and between the own departments; but

also in and between cooperation with other parties. We are talking about complex organisational changes – not only in terms of agreements and processes, but especially also in terms of work culture and the way people interact. Getting acquainted with this requires a lot of time and energy and is possibly the hardest part of the journey towards circularity.

To fulfil the journey towards circularity it is important to be aware that this is an iterative process. The moment the process of trial and error has begun you will notice that you will often have to take a step back or to the side if one (or more) of your assumptions seem to be wrong or ideas seem to be impossible to implement. Beware the pitfall of approaching the development of your circular business in a linear fashion: back casting and iteration are inherently linked to the journey to circularity.

Similarly regarding the methodology used here: do not see the steps as activities that are set in stone, but interconnected and reciprocal building blocks that help you to gain insights into CBM's. Working your way through this book enables you get an idea of where you will start – but not necessarily where you will end up - and that's all a normal part of the process.

In conclusion, in the previous pages we provided a step-by-step methodology for parties to develop their own CBM. That instrument is what it is: a tool to think together, to communicate and to make decisions together. The results will not be complete but rather the start of a new entrepreneurial adventure - which is completely apt given the immature status of the CE itself. Our thinking about the CE only took off very recently and we need to invest a lot of time and energy to connect circularity with radical 'sustanification' of the linear economy. What this will lead to? The first signs are positive but it is also clear that we are just at the start of an immense task that can be best defined as 'The Great Societal Reconstruction'.

## Be patient

Circularity for many companies means doing a lot very differently. This does not happen very fast though, not only because renewal leads to resistance but that challenging working business models is not something one does lightly. It also means that the transition to circularity cannot go as fast as everybody hopes for. As an entrepreneur you cannot suddenly replace all your machinery. That would require way too large and sudden investments and lead to destruction of capital. Not all companies have enough money on the shelf to develop new ways of working. Especially if those 'new ways of working' will only lead to profits after a few years. Circular entrepreneurship will happen, but it will take time.

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**JAN JONKER** is Professor of Sustainable Entrepreneurship at Radboud University (Nijmegen School of Management, NL). His work focuses on the development of three closely related themes: the emergence of the Weconomy, the development of new business models and the circular economy, and the exploration and development of value transaction systems with more than money alone. Along with over 40 people, he wrote the best-seller 'Nieuwe Business Modellen; Samen Werken aan Waardecreatie' (2014), the English translation of which was published as an e-book [New Business Models; Working Together on Value Creation], which is linked to a Massive Open Online Course ([bit.ly/1TRfa8A](https://bit.ly/1TRfa8A)).

**IVO KOTHMAN** was involved in the BMCE project as a researcher and programme manager from the Radboud University Nijmegen for two years. In the national research, he focussed on the quantitative data analysis and was responsible in collaboration with others for coordination of the interviews. As a researcher, he combines his technical insights from his background as an engineer with economic insights from his experience as a researcher in issues addressing sustainability and more specifically the circular economy. At the moment, he is lecturer-researcher at the UAP Saxion (NL) with circular economy as part of his portfolio.

**NIELS FABER** is a researcher at the Radboud University Nijmegen and lecturer at the Hanze University of Applied Sciences in Groningen (NL). His research focusses on the organisational aspects of sustainability. This translates into three related themes: the transition to a sustainable society and towards the circular economy in particular, new forms of organisation for sustainability, and measuring sustainability. He has produced more than 50 publications, including books, book chapters and articles, and conference contributions.

**NAOMI MONTENEGRO NAVARRO** has a background in Organisational Sciences and Environmental Sciences, with a specialisation in Policy and Governance. She applies her academic knowledge and passion for sustainable transitions in research projects in the field of the circular economy and has worked on various publications with Jan Jonker on Circular Cities and Circular Business Models.

## Need for innovations

'We will never solve the quest to reduce CO<sub>2</sub> emissions by 50% within 12 years with utopian thinking. My opinion is that we really need innovations and we need them fast. Whether they are linear or circular does not matter. I would argue that we need to solve the biggest issues that we currently face as industry and society with linear industrial principles. For the coming 12 years the circular economy will not be efficient or mature enough to provide fast and robust solutions.'

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## NETWORKS, EDUCATION AND MEDIA

Anyone that aims to become active within the circular economy can use all the help available. Fortunately, many meetings, networks and other sources are emerging in Europe. Below a selection of public institutions, education, knowledge institutes and network organisations is listed. These are predominantly from the Netherlands, while some are Belgian and British. Conferences are not included; it suffices to subscribe to one of the many (international) news platforms to be informed on a regular basis of meetings, conferences and other CE events.

### Networks

**CIRCULAR WASTE (AFVAL CIRCULAIR)** [www.afvalcirculair.nl](http://www.afvalcirculair.nl)

This is a website of the Dutch Ministry of Infrastructure and Water Management with a large amount of links to websites on the circular economy.

**CIRCLE ECONOMY (THE NETHERLANDS)**

[www.circle-lab.com/knowledge-hub](http://www.circle-lab.com/knowledge-hub)

Circle Economy a Dutch social enterprise whose mission is to accelerate the practical and scalable implementation of the circular economy. They recently launched Circle Lab which is the largest open innovation platform for the Circular Economy with over 1000 case studies, articles, reports and insights.

**CIRCULAR ENTREPRENEURSHIP (CIRCULAIR ONDERNEMEN)**

[www.circulairondernemen.nl/](http://www.circulairondernemen.nl/)

Circular Entrepreneurship is a Dutch matchmaker platform for circular entrepreneurs. This programme stimulates people and organisations to start circular entrepreneurship and to produce, consume, finance and organise more innovatively.

**ELLEN MACARTHUR FOUNDATION (UK)**

[www.ellenmacarthurfoundation.org](http://www.ellenmacarthurfoundation.org)

The Ellen MacArthur Foundation believes that the circular economy provides a coherent framework for systems level re-design and innovation. Looking beyond the current 'take, make and dispose' extractive industrial model, the circular economy is restorative and regenerative by design. Relying on system-wide innovation, it aims to redefine products and services to design waste out, while minimising negative impacts. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural and social capital.

**ENERGY AGREEMENT (ENERGIEAKKOORD)** [www.energieakkoordser.nl](http://www.energieakkoordser.nl)

A large group of Dutch organisations signed the national Energy Agreement on 6 September 2013 for sustainable growth. Core of the agreement are widely supported agreements on energy reduction, clean technology and climate policy. Implementation of the agreements should result in affordable and clean energy system and employment opportunities.

**INNOVATE UK'S KNOWLEDGE TRANSFER NETWORK ON SUSTAINABILITY**

**& CIRCULAR ECONOMY** <https://ktn-uk.co.uk/interests/sustainability-circular-economy>

Innovate UK is the UK's Innovation Agency and the Knowledge Transfer Network (KTN) is a network partner. KTN helps organisations to get the best out of creativity, ideas and the latest discoveries, in order to strengthen the UK economy and improve people's lives.

**LOCAL EUROPE (EUROPA DECENTRAAL)** [www.europadecentraal.nl](http://www.europadecentraal.nl)

The European Union has set the targets to protect, preserve and improve

the environment for current and future generations. Moreover, sustainable development has to be supported and energy has to be used more sparingly. Hence, the EU set up a diverse set of policies and regulations. On this website you can find the policies that are relevant for local governments.

**SCIENTISTS FOR A SUSTAINABLE ECONOMY (HET GROENE BREIN, NL)**

[www.hetgroenebrein.nl](http://www.hetgroenebrein.nl)

With a network of 120 scientists the group supports entrepreneurs that want to move towards a new economy. On the one hand, enterprises are supported individually by looking for answers on sectoral levels. On the other hand, the group works on the achievement of the right framework for the new economy by generating applicable knowledge, future-proof education and by pursuing systemic changes that lead to a sustainable economic system.

**MVO NEDERLAND/DE GROENE ZAAK** <https://mvonederland.nl/>

MVO Nederland is a knowledge and network organisation for companies. The past few years MVO has grown into a network of over 2200 sustainable companies, small and large, from a wide range of sectors. Partners from the network are private companies, education partners, societal organisations or the government. The partners combined constitute the largest company network in Europe in the field of sustainable entrepreneurship.

**DUTCH MINISTRY OF INFRASTRUCTURE AND WATER MANAGEMENT** [www.rijksoverheid.nl/ministeries/ministerie-van-infrastructuur-en-waterstaat/nieuws](http://www.rijksoverheid.nl/ministeries/ministerie-van-infrastructuur-en-waterstaat/nieuws)

The Ministry of IWM is responsible for the management and implementation of the CE agenda. The responsible secretary is mrs. Stientje van

Veldhoven. News on this agenda and related items are regularly posted at the above mentioned website.

**OVAM** [www.ovam.be](http://www.ovam.be)

The OVAM is the public Flemish Waste management company and strives for a sustainable waste and resource and soil management in Flanders. The OVAM is active in internal environmental care since 1994. The 17 SDG's of the UN are used as the guiding framework.

**PBL NETHERLANDS ENVIRONMENT AGENCY** [www.pbl.nl/overpbl](http://www.pbl.nl/overpbl)

PBL is the national institute for strategic policy analysis in the field of the environment, nature and space. PBL contributes to the quality of political and governance decisions by conducting scans, analyses and evaluations for which an integrated approach is leading. PBL does contract and non-contract work, independently and scientifically funded.

**COUNCIL FOR THE ENVIRONMENT AND INFRASTRUCTURE (RLI)**

<http://rli.nl>

The RLI is the strategic advisory council for the government and parliament within the broad domain of the physical environment. The RLI works on the physical policy domains of various Dutch ministries. By implementing integrated approaches and advice on strategic levels the government seek to contribute to the deepening and broadening of the political and societal debate and the quality of decision-making.

**NETHERLANDS ENTERPRISE AGENCY (RVO)** [www.rvo.nl/onderwerpen](http://www.rvo.nl/onderwerpen)

The task of the RVO is to support companies with the exploration and entry on new markets, sustainable entrepreneurship and growth expansion.

The dogma is: “Think big. Think green. Invest sustainably”. Get acquainted with experiences from practice, rules and regulations, networks and tools.

**SUSTAINABLE FINANCE LAB (SFL)** [sustainablefinancelab.nl](http://sustainablefinancelab.nl)

The goal of the SFL is to contribute to a stable and robust financial sector that in turn contributes to an economy that serves mankind without degrading the natural environment. To achieve this, SFL develops ideas and provides a platform to discuss those ideas. SFL want to bridge the academic world and the practical reality of everyday finance; scientists are linked to financial professionals, watchdogs, policy advisors and other parties that are relevant for the development of a sustainable financial sector.

**TNO** [www.tno.nl/nl/aandachtsgebieden/circulaire-economie-omgeving/](http://www.tno.nl/nl/aandachtsgebieden/circulaire-economie-omgeving/)  
Making society more sustainable might be the single largest societal challenge. This topic is prominently on the agenda for both governments as well as companies. The broadness and complexity of the topic of sustainability, however, brings along large insecurities on what the best fitting solutions are and at what pace they can and should be implemented. TNO is an institution that can help to find answers to such questions.

**VITO** <https://vito.be>

The Flemish Institution for Technological Research and hence the Belgian cousin of the Dutch TNO is a leading research institute in the field of cleantech and sustainable development. Climate change, resource scarcity, sustainable energy supply, the aging population... The research agenda of VITO is aimed at the most critical societal challenges of today.

## Education

**LECTURE SERIES ‘CIRCULAR ECONOMY’ (IN DUTCH)**

[www.collegecirculaireeconomie.nl](http://www.collegecirculaireeconomie.nl)

In this inspiring lecture series the front runners and specialists of the CE in the Netherlands share their insights and experiences related to management. The first edition (spring 2018) is sold out. A new series will start in the fourth semester of 2018.

**IMPACT ACADEMY** [impact-academy.nl](http://impact-academy.nl)

This academy organises outstanding educational and development opportunities for sustainability professionals. The goal is to inspire and give extra impulses to sustainable thinking and acting.

**IMPACT CENTRE ERASMUS (ICE)** [www.eur.nl/ice/onderwijs](http://www.eur.nl/ice/onderwijs)

The ICE provides the Executive Program Corporate Social Responsibility for professionals that want to theoretically strengthen and practically broaden their knowledge in the field of strategic management of sustainable entrepreneurship.

**TRANSITION ACADEMY** [drift.eur.nl/nl/academy/](http://drift.eur.nl/nl/academy/)

The Transition Academy provides specialised insights into societal change processes and provides practical tools for everybody that wants to contribute to the transition towards a more sustainable, just and resilient world. The selection on offer consists of (post) academic educational programmes and innovative learning trajectories for students, entrepreneurs and professionals.

## Media

**CSR WIRE** [www.csrwire.com](http://www.csrwire.com)

CSRwire is a digital media platform for the latest news, views and reports in corporate social responsibility (CSR) and sustainability, based in Springfield, Massachusetts (US). CSRwire.com, along with Justmeans.com, SocialEarth.org and 3blmedia.com, are all part of a family of companies and platforms, raising awareness for CSR and sustainability initiatives around the globe.

**SUSTAINABLE TRADE AND INDUSTRY (DUURZAAM BEDRIJFSLEVEN)**

[www.duurzaambedrijfsleven.nl](http://www.duurzaambedrijfsleven.nl)

This is an important news source about sustainable entrepreneurship, innovation and cleantech for Dutch trade and industry. Each day the website provides overviews of news on the opportunities for sustainability.

**SUSTAINABLE NEWS (DUURZAAM NIEUWS)** [www.Duurzaamnieuws.nl](http://www.Duurzaamnieuws.nl)

This website wants to accelerate the transition to a sustainable society by collecting and publishing trustworthy, complete and practically useful information, which helps people to achieve their sustainable goals.

**SUSTAINABLE ENTREPRENEURSHIP (DUURZAAM ONDERNEMEN)**

[www.duurzaam-ondernemen.nl](http://www.duurzaam-ondernemen.nl)

This is an online knowledge platform in the field of sustainable entrepreneurship and societally responsible entrepreneurship. The website was

launched in 2000 and thereby probably one of the oldest Dutch websites related to sustainability and societal responsibility.

**P+** [www.p-plus.nl](http://www.p-plus.nl)

Since 2002, P+ is a leading multi-medium for the practicalities of sustainable entrepreneurship. P+ has a website, e-magazine, social media, movies and organises congresses and seminars.

**TGTHR** <https://tgthr.nl>

TGTHR wants to connect sustainable entrepreneurs and professionals, because together they have the power to make our society more sustainable.

**MVO LINKEDIN GROUP** [www.linkedin.com/groups/1237417](http://www.linkedin.com/groups/1237417)

This LinkedIn group 'Duurzaam ondernemen / maatschappelijk verantwoord ondernemen (MVO) professionals' (Dutch group for Sustainable Entrepreneurship) has 27.000 members and is probably the largest group in the Netherlands. It is free to join and updates are posted on a daily basis.

In addition to this list, there is a growing number of advisory organisations that focus on sustainability, responsible entrepreneurship, resource analyses, and of course the circular economy, however given space constraints it was decided not to include an overview of these.

## OVERVIEW OF FIGURES, WORKSHEETS AND INFOGRAPHICS

### Overview figures

- 1 Cycle
- 2 Business model
- 3 The Cycles Ladder
- 4 CBM (original)
- 5 CBM (adjusted)
- 6 CBM II with contextual factors
- 7 The workbook in one glance
- 8 Gleeson-White combined with the CBM-model
- 9 The change pyramid

### Overview worksheets

- 1 Matrix with strengths and weaknesses
- 2 Cycle that fits with the collective business proposition
- 3 Parties in the cycle
- 4 Overview of value creation for each step of the cycle
- 5 Areas of concern regarding internal and external organisation
- 6 Overview of revenue and calculation models
- 7 Hard and soft indicators

### Infographics

Below an overview is provided of all companies and parties that have cooperated in this research and for which an infographic was created. Each of these infographics shows how the cycle of that particular organisation is organised, and which (kinds of) parties are involved. We are very grateful to the time and input these organisations have invested in the infographics and hence the book. The infographics are often mentioned in the workbook. Below a total overview is provided, which shows the names of the companies, a brief description of what they do, and their websites. The list is provided in alphabetical order.

- 1 **ARN B.V. (BIOGAS)** [www.arnbv.nl/energie-uit-afval/verwerking-productie/](http://www.arnbv.nl/energie-uit-afval/verwerking-productie/)  
ARN converts (residual) waste into energy, fertiliser and other reusable materials. In the bio-digester organic waste is converted into biogas, which is subsequently upgraded into natural gas quality.
- 2 **ARN B.V. (DIAPERS)** [www.arnbv.nl/over-arn/luierrecycling](http://www.arnbv.nl/over-arn/luierrecycling)  
ARN also recycles diapers and converts that waste stream into energy and resources.
- 3 **AUPING (MATRASSES)** [www.auping.com](http://www.auping.com)  
Works on the development of circular business operations by reusing materials without wasting resources. In the future, the company only wants to make recyclable products while using clean energy.
- 4 **BLACK BEAR (TYRES)** [www.blackbearcarbon.com](http://www.blackbearcarbon.com)  
Harvest and upcycle the carbon black from end-of-life tires to a quality level that exceeds the original product – in a way that preserves the planet.

- 5 BMA (OFFICE CHAIRS)** [www.bma-ergonomics.com](http://www.bma-ergonomics.com)  
The starting point is that waste does not exist and material cycles have to be closed. Therefore, sustainability is a leading principle in the business operations of BMA.
- 6 CANON (REFURBISHING EQUIPMENT)** [www.canon.nl](http://www.canon.nl)  
Aims to provide a broad range of refurbished electronics for consumers to choose from grounded in a company focus on sustainability.
- 7 CIRCUWEAR (PROTOTYPE CIRCULAR PROCESSING COMPANY CLOTHING)** [www.outfit.nl](http://www.outfit.nl)  
Provides company clothing and collects used company clothing. Circuwear is researching the opportunities for circular processing of old clothing, and is aiming to develop processes which allow the threads to be used as a raw material for other products.
- 8 COOLREC (VACUUM CLEANERS)** [www.coolrec.com](http://www.coolrec.com)  
Coolrec is a recycler of machines, plastics and non-ferrous metals and provides high quality raw materials for new products.
- 9 DESKO (OFFICE FURNITURE)** [www.desko.nl](http://www.desko.nl)  
Desko has all the tools necessary to provide circular office arrangements through sales, buy-back, rent, and lease systems, pay-for-use, refurbishment and pre-emptive maintenance of furniture.
- 10 GISPEN (FURNITURE)** [www.gispen.com](http://www.gispen.com)  
Concretises sustainability in her products by taking the CE as a leading company philosophy and design vision; all company choices are aligned with this vision.
- 11 GTT (CLOSED PAPER CYCLE)** [www.gateway.edu.au](http://www.gateway.edu.au)  
GTT PNEB in Australia pursues optimal recycling of waste paper and combined use of new and recycled paper input.
- 12 HHS DELFLAND (WATER CYCLE)** [www.hhdelfland.nl](http://www.hhdelfland.nl)  
Delfland, a water board, is a 'functional democracy', meaning they operate as a government with a limited task, mainly the maintenance and management of the water system and waste water treatment in their region.
- 13 INTERFACE (THE ECONOMY AT THE META-LEVEL)** [www.interface.com](http://www.interface.com)  
Interface is the world's largest producer of carpet tiles and a leading company in the development of materials and processes that allow for modular carpets while reducing negative impacts on the environment.
- 14 KAAK (3D PRINTED METAL)** [www.kaak.nl](http://www.kaak.nl)  
Develops and produces stand-alone machines and complete production lines for the industrial bakery sector. Kaak prints machine parts that need to be replaced.
- 15 KIDV (PROTOTYPE CHEMICAL RECYCLING OF PLASTICS)** [www.kidv.nl](http://www.kidv.nl)  
KIDV contributes to a circular economy by aiming for packaging that are designed, produced, and processed in such a way that they can be renewed, reduced, reused and recycled. Currently they are active in researching the optimal process of chemical conversion of plastics.
- 16 LOGGE (OFFICE FURNITURE)** [www.loggecirculair.nl](http://www.loggecirculair.nl)  
Provides customised goods for circular office arrangements. Only uses healthy materials and strives to bring every material used back into the cycle, hence eliminating waste.
- 17 PAPERWISE (PAPER)** [www.paperwise.eu](http://www.paperwise.eu)  
Provides a second life to agricultural waste streams by converting it to raw material for paper and cardboard production.
- 18 PEELPIONEERS (CITRUS PEELS)** [www.peelpioneers.nl](http://www.peelpioneers.nl)  
Processes citrus peels turning them into valuable raw materials, such as essential oils and fibre rich pellets.

**19 PEEZE (COFFEE)** [www.peeze.nl](http://www.peeze.nl)

A Dutch coffee roasting factory that uses 100% climate neutral and certified Arabica coffee.

**20 POOLING PARTNERS (PALLET)** [www.poolingpartners.com](http://www.poolingpartners.com)

Market leader in Europe in the field of integrated, full-service pooling services and production of wooden pallets and boxes.

**21 REFOOD (ORGANIC WASTE)** [www.ReFood.nl](http://www.ReFood.nl)

Processes organic residual waste streams that are no longer used in the food industry. Uses digestion to convert food waste into electricity and heat.

**22 RENEWI (MIXED WASTE STREAMS)** [www.renewi.com](http://www.renewi.com)

Aims to obtain value from waste and strives to become the leading waste-to-product company by contributing to a sustainable society.

**23 ROOF2ROOF (RECYCLING OF BITUMEN ROOFS)** [www.roof2roof.nl](http://www.roof2roof.nl)

Recycles bitumen roof covers into resources for new roofs and asphalt roads.

**24 SUIKER UNIE (PROCESS OPTIMISATION)** [www.suikerunie.nl](http://www.suikerunie.nl)

Suiker Unie works on the conversion of their production and processes into more sustainable alternatives, based on the pillars of 'care for the environment and societal involvement'.

**25 UNIE VAN WATERSCHAPPEN (PROTOTYPE CYCLE 2030)** [www.uvw.nl](http://www.uvw.nl)

Contributes to a sustainable society, together with its partners, by converting waste into clean resources, energy and clean water.

**26 URGENDA (FERTILIZER PRODUCTION WIND AND WATER)**

[www.urgenda.nl](http://www.urgenda.nl)

Urgenda is the Dutch organisation for innovation and sustainability that wants to accelerate the transition to a sustainable society together with its companies, governments, societal organisations and private parties.

**27 WEPANEDERLAND (TOILET PAPER)** [www.wepa.nl](http://www.wepa.nl)

Wepa Nederland is working on the development of toilet hygiene solutions that contribute to a cleaner environment. Closing the cycle is a step they are working on to contribute to a circular economy.

**28 VAN HULLEY (UNDERWEAR)** [www.vanhulley.nl](http://www.vanhulley.nl)

Boxer shorts from old clothing made by women that want to work, but do not yet possess the right paper work to achieve their ambitions in the labour market.

**29 VITENS (RESIDUAL STREAMS WATER TREATMENT)** [www.vitens.com](http://www.vitens.com)

Contributes to sustainability by reducing their CO<sub>2</sub> footprint, making residual streams available for the agricultural sector and by stimulating local biodiversity in and around water harvesting areas.

**30 VLAKGLAS RECYCLING NEDERLAND (ACTORS INVOLVED IN THE SHEET GLASS RECYCLING PROCESS)** [www.vlakglasrecycling.nl](http://www.vlakglasrecycling.nl)

Collects and recycles sheet glass waste that is used in buildings. The collected glass waste is turned into new glass that can be reused in the building sector.

**31 WESTERZWAM (OYSTER MUSHROOMS)** [www.westerzwam.nl/](http://www.westerzwam.nl/)

Grows oyster mushrooms on the coffee grounds of restaurants and supplies these mushrooms to the same restaurants that delivered the coffee grounds.

## OVERVIEW OF CIRCULAR ECONOMY CASES IN THE NETHERLANDS

This table is taken from the Business Models for the Circular Economy publication (Closing the Value Cycle), which followed from the study conducted in 2016 and 2017 by the Nijmegen School of Management (Radboud University). One of the outputs of this study was the following overview of 'green' companies in the Netherlands.

Name	Location	Website
A green story	Zoetermeer	<a href="http://www.agreenstory.nl">www.agreenstory.nl</a>
A van Liempd	St. Oedenrode	<a href="http://www.avanliempd.nl">www.avanliempd.nl</a>
ACE Re-use Technology	Horst	<a href="http://www.acewikkeltechniek.nl">www.acewikkeltechniek.nl</a>
Akoestiek Fabriek	Rotterdam	<a href="http://www.akoestiekfabriek.nl">www.akoestiekfabriek.nl</a>
AND Cheesetrade	Leeuwarden	<a href="http://www.andcheesetrade.nl">www.andcheesetrade.nl</a>
Arn	Tiel	<a href="http://www.arn.nl">www.arn.nl</a>
Attero	Bergen op Zoom	<a href="http://www.attero.nl">www.attero.nl</a>
Auping	Deventer	<a href="http://www.auping.com">www.auping.com</a>
Awearness Fashion	Arnhem	<a href="http://www.awearness-fashion.nl">www.awearness-fashion.nl</a>
Benthem Trade	Vollenhove	<a href="http://www.vbvoer.nl">www.vbvoer.nl</a>
Binbang	Utrecht	<a href="http://www.binbang.nl">www.binbang.nl</a>
Bio 4 life	Bleiswijk	<a href="http://www.bio4life.nl">www.bio4life.nl</a>
Biofutura	Rotterdam	<a href="http://www.biofutura.nl">www.biofutura.nl</a>
BlackbearCarbon	Nederweert	<a href="http://www.blackbearcarbon.com">www.blackbearcarbon.com</a>
BMA ergonomics	Zwolle	<a href="http://www.bma-ergonomics.com">www.bma-ergonomics.com</a>
Boanova	Woerden	<a href="http://www.boanova.eu">www.boanova.eu</a>
Bundels	Amsterdam	<a href="http://www.bundles.nl">www.bundles.nl</a>
By Mölle	Dalfsen	<a href="http://www.bymolle.com">www.bymolle.com</a>
Canon	Amstelveen	<a href="http://www.canon.nl">www.canon.nl</a>
Capeshield	Amsterdam	<a href="http://www.capeshield.nl">www.capeshield.nl</a>
Cartridge Europe	Breda	<a href="http://www.cartridge-europe.com">www.cartridge-europe.com</a>

## OVERVIEW OF CIRCULAR ECONOMY CASES IN THE NETHERLANDS

Name	Location	Website
Cementbouw	Cruquius	<a href="http://www.cementbouw.nl">www.cementbouw.nl</a>
Circuwear	Gorinchem	<a href="http://www.outfit.nl">www.outfit.nl</a>
Closing the Loop	Amsterdam	<a href="http://www.closingtheloop.eu">www.closingtheloop.eu</a>
Coolrec	Eindhoven	<a href="http://www.coolrec.com">www.coolrec.com</a>
Desko	Amsterdam	<a href="http://www.desko.nl">www.desko.nl</a>
Desso	Waalwijk	<a href="http://www.desso-businesscarpets.com">www.desso-businesscarpets.com</a>
Dijkhuis aannemersbedrijf	Hardenberg	<a href="http://www.dijkhuis.nu">www.dijkhuis.nu</a>
DSM	Heerlen	<a href="http://www.dsm.com">www.dsm.com</a>
Dutchawareness	Nijmegen	<a href="http://www.dutchawareness.com">www.dutchawareness.com</a>
Dutchspirit	Arnhem	<a href="http://www.dutchspirit.com">www.dutchspirit.com</a>
Duurzame Bedrijfskleding	Leeuwarden	<a href="http://www.duurzame-bedrijfskleding.nl">www.duurzame-bedrijfskleding.nl</a>
Eeko group	Deventer	<a href="http://www.eeko.com">www.eeko.com</a>
Elvis and Kresse	Amsterdam	<a href="http://www.elvisandkresse.nl">www.elvisandkresse.nl</a>
Pooling Partners	Eck en Wiel	<a href="http://www.poolingpartners.com/nl-nl/">www.poolingpartners.com/nl-nl/</a>
Fairphone	Amsterdam	<a href="http://www.fairphone.com/nl/">www.fairphone.com/nl/</a>
Fiberplast	Drachten	<a href="http://www.fiberplast.nl">www.fiberplast.nl</a>
Foenix	Apeldoorn	<a href="http://www.foenix.nl">www.foenix.nl</a>
Gampet	Goor	<a href="http://www.gampet.nl">www.gampet.nl</a>
GBN	Utrecht	<a href="http://www.gbn.nl">www.gbn.nl</a>
Gerrardstreet	Utrecht	<a href="http://www.gerrardst.nl">www.gerrardst.nl</a>
Gispen	Culemborg	<a href="http://www.gispen.com/nl/">www.gispen.com/nl/</a>
Green Mobile	Bodegraven	<a href="http://www.telgagroep.nl">www.telgagroep.nl</a>

Name	Location	Website
GSR	Amsterdam	<a href="http://www.gs-recycling.nl">www.gs-recycling.nl</a>
Hermeta	Asperen	<a href="http://www.hermeta.nl">www.hermeta.nl</a>
Herso	Loosbroek	<a href="http://www.herso.nl">www.herso.nl</a>
Ikea	Amsterdam	<a href="http://www.ikea.com/duurzaam">www.ikea.com/duurzaam</a>
Indusigns	Amsterdam	<a href="http://www.indusigns.nl">www.indusigns.nl</a>
Inspire Workwear	Arnhem	<a href="http://www.inspire-workwear.com">www.inspire-workwear.com</a>
Interface	Scherpenzeel	<a href="http://www.interface.com/EU/nl-NL/">www.interface.com/EU/nl-NL/</a>
ITC	Amsterdam	<a href="http://www.itc-accessories.com">www.itc-accessories.com</a>
Logge Circulair	Nieuwegein	<a href="http://www.loggecirculair.nl">www.loggecirculair.nl</a>
Lune	Hoogeveen	<a href="http://www.lune.nl">www.lune.nl</a>
Modulo Milieustraten	Soest	<a href="http://www.modulo-beton.nl">www.modulo-beton.nl</a>
Mosa	Maastricht	<a href="http://www.mosa.com/nl-nl">www.mosa.com/nl-nl</a>
Mudjeans	Almere	<a href="http://www.mudjeans.eu">www.mudjeans.eu</a>
Mushbin	Amsterdam	<a href="http://www.mushbin.nl">www.mushbin.nl</a>
Natural Plastics	Heemskerk	<a href="http://www.naturalplastics.nl">www.naturalplastics.nl</a>
Natuurkeukens	Driebergen-Rijsenburg	<a href="http://www.natuurkeukens.nl">www.natuurkeukens.nl</a>
NS	Utrecht	<a href="http://www.ns.nl">www.ns.nl</a>
Paperfoam	Barneveld	<a href="http://www.paperfoam.com">www.paperfoam.com</a>
PaperWise	Aarle-Rixtel	<a href="http://www.paperwise.eu">www.paperwise.eu</a>
Peeze	Arnhem	<a href="http://www.peeze.nl">www.peeze.nl</a>
Pennings	Uden	<a href="http://www.pennings-itrecycling.nl">www.pennings-itrecycling.nl</a>
Philips	Eindhoven	<a href="http://www.philips.com">www.philips.com</a>

Name	Location	Website
Plastic & Product Recycling	Swalmen	<a href="http://www.pp-recycling.nl">www.pp-recycling.nl</a>
Proludic	Mill	<a href="http://www.proludic.nl">www.proludic.nl</a>
QCP	Geleen	<a href="http://www.qcpolymers.com">www.qcpolymers.com</a>
Q-vention	Uden	<a href="http://www.q-vention.nl">www.q-vention.nl</a>
Reborn	Amsterdam	<a href="http://www.re-born.nu">www.re-born.nu</a>
Recover-e	Nijmegen	<a href="http://www.recover-e.nl">www.recover-e.nl</a>
ReFood	Emmen	<a href="http://www.ReFood.nl">www.ReFood.nl</a>
Roelofs	Den Ham	<a href="http://www.roelofsgroep.nl">www.roelofsgroep.nl</a>
Roetz Bikes	Amsterdam	<a href="http://www.roetz-bikes.com">www.roetz-bikes.com</a>
Roof2Roof	Borger	<a href="http://www.roof2roof.nl">www.roof2roof.nl</a>
RotterZwam	Rotterdam	<a href="http://www.rotterzwam.nl">www.rotterzwam.nl</a>
Saneral	Amsterdam	<a href="http://www.saneral.com">www.saneral.com</a>
SmartCrusher	Oss	<a href="http://www.slimbreker.nl">www.slimbreker.nl</a>
Smateria	Amsterdam	<a href="http://www.smateria.nl">www.smateria.nl</a>
Snew	Vught	<a href="http://www.snew.eu">www.snew.eu</a>
Solidpack	Loenen	<a href="http://www.solidpack.eu">www.solidpack.eu</a>
Stonecycling	Amsterdam	<a href="http://www.stonecycling.com">www.stonecycling.com</a>
Sugartray	Almelo	<a href="http://www.sugartray.com">www.sugartray.com</a>
Teleplan	Schiphol	<a href="http://www.teleplan.com">www.teleplan.com</a>
The Waste Transformers	Hoofddorp	<a href="http://www.thewastetransformers.com">www.thewastetransformers.com</a>
Tshared	Zutphen	<a href="http://www.tshared.eu">www.tshared.eu</a>

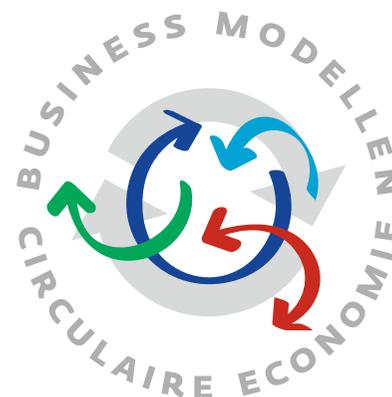
Name	Location	Website
Turntoo	Amsterdam	<a href="http://www.turntoo.com">www.turntoo.com</a>
Ubbink	Doesburg	<a href="http://www.ubbink.nl">www.ubbink.nl</a>
Renewi	Eindhoven	<a href="http://www.renewi.com/nl/welcome">www.renewi.com/nl/welcome</a>
Van Houtum	Swalmen	<a href="http://www.vanhoutum.nl">www.vanhoutum.nl</a>
Van Hulley	Groningen	<a href="http://www.vanhulley.nl">www.vanhulley.nl</a>
Velto	Zoeterwoude	<a href="http://www.velto.nl">www.velto.nl</a>
Vitens	Zwolle	<a href="http://www.vitens.nl">www.vitens.nl</a>
VlakglasRecyclingNederland	Zoetermeer	<a href="http://www.vlakglasrecycling.nl">www.vlakglasrecycling.nl</a>
Waste 2 wear	Abcoude	<a href="http://www.waste2wear.com">www.waste2wear.com</a>
Webo	Rijssen	<a href="http://www.webo.nl">www.webo.nl</a>
Wecycle	Zoetermeer	<a href="http://www.wecycle.nl">www.wecycle.nl</a>
Weder	Harderwijk	<a href="http://www.weder.nu">www.weder.nu</a>
WesterZwam	Wapserveen	<a href="http://www.westerzwam.nl">www.westerzwam.nl</a>
Ynova Innovation Company	Leeuwarden	<a href="http://leaninnovationnetwork.yip.community/nl/p/">http://leaninnovationnetwork.yip.community/nl/p/</a>

Source: Jonker, J., Stegeman, H., Faber, N.R. en Kothman, I. (2017).

## Organising for the Circular Economy

A workbook for developing Circular Business Models

Attention for the circular economy is increasing, in the public as well as the private sector, both in the Netherlands and across wider Europe. The circular economy has the potential to contribute to the larger challenges of our time, such as the energy transition and combating climate change. In 2016-2017 a nationwide study was conducted to assess the current status of the CE in the Netherlands. This research showed that the practical translation of the CE concept to the business community lagged behind the measured interest in the concept. This workbook is based on the presumption that the CE will only become reality in the business community if it can lead to a business model, because business models are the foundational component of companies and lie at the heart of value creation. A Circular Business Model (CBM) shows how various parties close a cycle together with the aim of value creation. In this workbook a unique model is provided that reveals the seven separate building blocks of CBMs. Step-by-step the workbook introduces the reader to the building blocks by offering questions, the purpose being to assist the reader in the development of their own business model; a model that leads to a new value proposition or that shows how to alter a currently existing proposition. As a tool to support and inspire, thirty-one infographics are included that are based on the current situation of companies that are already incorporating circularity in their business operations. This rich and unique material illustrates how organisations search for totally different solutions when it comes to the development of a collective value proposition. Thanks to our sponsors, this workbook is available free of charge at [www.circulairebusinessmodellen.nl](http://www.circulairebusinessmodellen.nl) and [www.newbusinessmodels.info](http://www.newbusinessmodels.info).



[www.newbusinessmodels.info](http://www.newbusinessmodels.info)

